

PHILOSOPHICAL  
AND  
LITERARY  
ESSAYS.



JAN 10 1840  
An Essay in Defense  
of Human Liberty

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PHILOSOPHICAL

AND

LITERARY

ESSAYS.

James

BY

DR GREGORY, OF EDINBURGH.

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VOL. II.

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*Nam Sophia ars illa est, quæ fallere suaviter boras  
Admonet, atque orci non timuisse minas.*

PSEUDON: apud PITCAIRN.

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EDINBURGH:  
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AND W. CREECH, EDINBURGH.

MDCCXCII.

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DR. GREGORY, OF EDINBURGH

VOL. II



EDINBURGH:  
Solely by T. CADELL, London  
AND W. CREECH, Edinburgh.  
MDCCLXXII

( ii )  
To DR REID.

SIR,  
IT would be ungrateful at least, and almost uncandid, were I to publish these Essays, without inscribing them to you; conscious as I am, that, but for the assistance which I have received from your writings, they never could have been composed, nor thought of; and that, but for the approbation which many parts of them have met with from you, they never would have been published. Indeed the hint of the principal argument which I have endeavoured to state and illustrate in the first of these Essays, the only one contained in this volume, was taken from an observation of yours, in one of your *Essays on*  
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*the intellectual Powers of Man*; the prosecution and application of which observation, I find, had not occurred to yourself.

I do not, however, presume to publish my speculations as wholly approved of by you; nor to make you in any degree answerable for such parts of them as may be thought erroneous or doubtful. If they cannot answer for themselves, it is I alone that must answer for them.

I have observed with much anxiety, that some of my observations and reasonings, which to myself appeared just and important, have not appeared so to you; and, in consequence of this distrust or dissent on your part, I have been led to examine with peculiar care, and to illustrate very fully, all those suspected parts of my disquisitions. The result of this more rigorous examination, in most instances, has been,

been, to confirm the opinion which I had formed before; and to enable me to illustrate it better, and to answer, in a manner which I think satisfactory, the principal objections that you had urged against my speculations.

The difference of opinion between us, has, I think, been chiefly on certain points, which, from the nature of my inquiries, I have had occasion to examine very minutely; much more so, I believe, than had ever been done before; and of which, though they had not altogether escaped your attention, you had taken only a more remote and general view. It is not for me, but for others, to judge, whether my attention to these points in science has been successfully employed or not.

I am too well acquainted with you, and with your candour in all matters of sci-

ence, to suppose that any explanation or apology to you could be necessary for my conduct in this respect; or to think that you could have expected or wished for any other conduct on my part. It is for the sake of others, who might be struck with certain differences of opinion between us, and who might mistake them for an inconsistency with respect to those important principles about which we perfectly agree, that I think it expedient to give some preliminary explanation and justification of my conduct. This I think I cannot better do than in the very words of BACON, whose sentiments I am sure you know, and revere, as much as I do: *Etsi non displiceat regula, OPORTET DISCENTEM CREDERE; huic tamen conjungendum est, OPORTET JAM EDOCTUM JUDICIO SUO UTI; discipuli enim debent magistris temporariam solum fidem, judiciique suspensionem, donec penitus imbiberint artes; non autem ple-*

*nam*



*nam libertatis ejurationem, perpetuamque ingenii servitutem.*

But though I take the liberty to differ materially from you on certain points in philosophy, I embrace with joy this opportunity, the best or only I may ever have, of acknowledging what pleasure and instruction I have derived from your conversation and writings; and of expressing the high sense that I have of the merit of your philosophy; which hath rescued one of the noblest and most interesting branches of knowledge, that of the Human Mind, from a state that rendered it unworthy of the name of Science, and a reproach to the human understanding; an object of contempt to the Wise, of detestation to the Good, and of well-merited derision even to the Vulgar.

That system of false science, which you have so happily exploded, as dangerous to  
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the best interests of mankind, has already undergone the severest revision and censure of some respectable authors, who, being themselves warmly interested in the cause of religion and virtue, were disposed to regard with the most jealous abhorrence every thing, and every word, that tended, however remotely, or threatened, however feebly, to shake their sacred foundations.

But its baneful effects on science itself have been greater and more evident; not merely by the many false and extravagant opinions to which it led, for these of themselves must soon have died away, but by poisoning the very fountain of knowledge; introducing the most visionary principles as fundamental truths, with a perfect neglect and contempt of that patient impartial observation, and of that strict and cautious induction, which alone can lead to the real knowledge of nature. It has thus  
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tended rather to bewilder and darken mankind, than to lead and enlighten them in the paths of science ; and has too often made its votaries rather ingenious disputants than solid reasoners. Nor has it been less pernicious, by deterring the ablest and most ardent in the pursuit of knowledge, with the unpromising appearance which it presented, and the unsatisfactory attainments which it afforded ; by satisfying the indolent with very imperfect and false accounts of those vast regions of science, which, by proper exertions of their own, they might well have hoped to explore ; and by filling the vain, for even in science vanity bears sway, with an arrogant conceit of superior knowledge, which they had neither talents nor perseverance to attain.

I must ever be of opinion, that those authors have deserved well of mankind, who have contributed by their labours,  
 either

either to make men wiser, or to make them better; but they surely deserve doubly well of them who do both. That such is the happy spirit and tendency of your philosophy, and that such will be the influence of your writings on all who shall peruse them with due attention, and without prejudice, I am well convinced. This prospect, and the assurance that you do not labour in vain, while the pure sunshine of a well-spent life gilds the evening of your days, will, I hope, encourage you still to prosecute those inquiries, in which you have hitherto been so successful.

Farewell.

JAMES GREGORY.

EDINBURGH,

JAN. I.

1790.

INTRO-



## INTRODUCTION.

**I**T must no doubt appear very strange, and perhaps will be thought not very wise, for one, whose profession and station engage him in the cultivation of physical science, ever to wander from his own more pleasant and fruitful province, into the thorny and barren regions of metaphysical speculation.

Such a conduct it is perhaps impossible fully to justify, and it may be difficult even to excuse; but in the present instance it may be, and it surely ought to be, accounted for at least.

The treatise contained in this volume is part of a much more extensive and important undertaking, *An Essay towards an investigation of the exact import and extent of the common notion of the relation of Cause*

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*and Effect in physics, and of the real nature of that relation.*

It will be admitted, I presume, at once, that this is an important inquiry; and that it is a rational one too, if any means can be found whereby it may be prosecuted with certainty and with success. From the nature and the object of it, it may be conceived to be equally interesting to the Metaphysician and to the Physical Inquirer; to the former, as relating to an essential part of the constitution of the human mind, or an important law of human thought; to the latter, as involving a strict examination of that principle, which is the foundation of one great part of his science: I mean that part of physical science which is called Natural Philosophy, in contradistinction to Natural History.

The nature and objects of these two branches of Physical Science, and of course the proper distinction and boundary between them, I conceive to be sufficiently and uniformly understood. Natural History considers

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considers material *Substances*; describes them, gives them names, and arranges them, on the principle of resemblance and difference, into higher and lower kinds and sorts, or, in its own technical language, into Kingdoms, Classes, Orders, Genera, Species, and Varieties. Natural Philosophy treats of physical *Events*; arranges them, in some measure, on the principle of resemblance, but endeavours always to refer them to their respective causes. Hence the intimate connection of these two branches of Natural Science, and the immediate subserviency of the former to the latter, must be evident, and are indeed universally acknowledged.

In every part of Natural Philosophy, it is assumed as a principle, That no event or change (for all the events that we observe are changes only, we perceive not in any of them either the beginning or the end of existence) comes to pass merely of itself, that is, without relation to any thing else; but that every change stands related to, and implies the existence and influence of, something else, in consequence

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quence of which such change came to pass, and which may be regarded as the principle, beginning, or source, of the change referred to it. The term *Cause* is usually employed to denote the supposed principle of change; and the term *Effect* is applied to the change considered as related to the principle of change whence it proceeded: for it must be observed, that both these terms, as commonly used, are relative. That which considered without relation to any change proceeding from it would be termed a Substance, or in some instances a Quality, or even an Event, when considered in that relation, is termed a *Cause*; and what considered as related to its cause would be termed an *Effect*, when regarded independently of that relation, is called an Event, or in some cases a State, or a Quality: Just as a person who considered by himself is called a Man, when considered in different relations may be a father, a son, a brother, a husband, a subject, a sovereign, &c. Thus the melting of snow, considered simply, is an *Event*; as related to heat, it is an *Effect*: Heat we perceive only as a *Quality*; or we  
may



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may call it perhaps a *State*; for aught we know, it may be a *Substance*, accumulated occasionally in different bodies, like water in a sponge: considered as related to the melting of snow, it is a *Cause*; considered as proceeding from the rays of the sun, or the inflammation of fuel, &c. it is an *Effect*.

The general philosophical principle on this point, involving the notion at present under consideration, is commonly expressed in such terms as the following: For every effect there must be a cause;—nothing exists, or nothing comes to pass, without a cause;—*Nihil turpius philosopho quam FIERI sine causa quicquam dicere.*—And this principle, which is the foundation of Natural Philosophy, has been regarded both as a physical and as a metaphysical axiom; physical, as expressing an important general fact with respect to the material world; metaphysical, as expressing a corresponding law of human thought, or something which all men of competent judgement think, and cannot help thinking.

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If this axiom were erroneous, Natural Philosophy would be but a kind of dream; as Geometry would be, if the axioms of it were false; or as the system of one would be, who should hold that all animals are hatched from eggs, as birds are; or that every substance in nature is produced by generation, and has a father and a mother, as the more perfect animals have.

The axiom under consideration cannot be supposed wholly erroneous; for every person of competent judgement and knowledge understands by it something of which he has the most perfect and irresistible conviction, as being universally true; and any person who should presume to deny it would be as little regarded, and would as little deserve regard, as one who should deny the axioms of geometry.

But though there may be *something* in that axiom as unquestionably true as any axiom of geometry; yet it must be owned, that, taken altogether, it is not quite so clear and precise as might be wished, and

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and as those of geometry actually are; and therefore, however necessary it may be to admit the physical axiom of the universality and the necessity of a *Cause* for every *Event* or supposed *Effect*, it must be equally, and even previously, necessary to have it rendered clear and precise; which can be done only by a particular explanation, and full illustration of the notion expressed by the term *Cause*, and of the relation conceived to subsist between *Cause* and *Effect*.

It is in vain, and would be almost absurd, to attempt to settle that preliminary point, by giving any *arbitrary* definitions, however clear and precise these might be made, of the notions and of the terms in question. Such definitions may easily be given, and many different definitions of them have been given accordingly, both in ancient and modern times. All of these definitions of any one term or notion, such as *Cause*, may be bad; that is, either altogether erroneous; or defective, and consequently too general; or redundant, and consequently too limited and partial, in  
their

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their application: nay, all but one of them *must* be bad, forasmuch as they are different.

It would require a dissertation much longer than I should wish this Introduction to be, to explain the laws of definition, with respect to natural objects, and to those notions that are universal among mankind, and are the natural and spontaneous suggestions of the human faculties, and which may fairly be regarded as fundamental and indefeasible laws in the constitution of the Human Mind.

It would even require a discussion inconveniently and disproportionately long for this place, to point out all the improprieties, and all the pernicious consequences, which have indeed been very extensive and very permanent, of the arbitrary definitions and erroneous doctrines concerning causes, that make a fundamental part of the *Platonic* and *Aristotelian* philosophy. These perhaps are more ancient even than PLATO, and may have only been borrowed by him from some of his predecessors;



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deceffors; but they were fully adopted, and in fome meafure altered and modified, by his fcholar ARISTOTLE; and by him were eftablifhed, as the very bafis of fcience, for more than two thoufand years. The whole of that boasted doctrine, impartially confidered, may fairly be refolved into one vague, confufed, *unnatural* notion, (το ἐξ ὅυ), which fome philofopher, in an evil hour for fcience, had unluckily formed for himfelf, and contrived to exprefs by an arbitrary and bad definition of the Greek term αἰτία, which we tranflate *Caufe*. I call the definition and ufe of that term, by PLATO, and ARISTOTLE, and their followers, arbitrary and bad, not merely becaufe it is too vague and general, comprehending, for example, the matter, and the form, as well thofe things ufually called and thought caufes, and fo is a violation of propriety of language, in Greek, as well as in Latin, and in the modern languages; but much more becaufe it is an attempt to do violence to the laws of human thought, and to make us confider feveral *things* as *species* of one *genus*, among which things there is not in

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reality a *generic* nature. It is an attempt to make a false and unnatural *genus*, which is indeed impracticable; but if it were possible, it would be a mortal sin in the philosophy as well as in the history of nature: it would be almost as bad as a false axiom. It is difficult to express in common language the nature of the violence done, or rather attempted, to the indefeasible laws of human thought, by ARISTOTLE's doctrine of Causes: the nearest that I can come to a just expression of it, is by observing, that it is a sort of counterpart to an arbitrary and unnatural division of a subject of thought. On such an improper, or, as he calls it, inelegant division, CICERO has very shrewdly remarked, *Hoc non est DIVIDERE, sed FRANGERE rem*: of ARISTOTLE's doctrine of Causes, we may say, with equal truth, though not with equal wit, *Hoc non est COMPREHENDERE, sed CONFUNDERE res*.—But as the minute discussion of that doctrine will come in more properly afterwards in the prosecution of these Essays, and is not immediately necessary for the understanding of any thing contained in this volume, I  
postpone

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postpone it for the present; only observing, in the words of BACON, *Ut aqua non ascendet altius quam caput fontis a quo pro-  
manat, ita doctrina ab ARISTOTELE de-  
ducta supra doctrinam ARISTOTELIS nun-  
quam assurget.*

With respect to the other point, the exact import and extent of the common and natural notion of the relation of cause and effect, concerning which relation I conceive that various fanciful and erroneous opinions have been entertained, and of which notion many arbitrary and confused and false definitions have been given, I think it a most important and interesting inquiry.

It is by no means necessary to examine minutely the various speculations and definitions of different philosophers about it; for that would be only to learn the opinions of a few individuals concerning a matter of fact, the truth of which is quite independent of them and their speculations, and may be completely ascertained without the smallest reference to



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any thing which they have either written or thought. The knowledge of their speculations about it must be considered chiefly as a matter of curiosity, and can scarce be thought of importance on any other account but with a view to the history of science, as those speculations and notions of philosophers, however fanciful, have had great influence on its progress.

But the question concerning the natural and general notion of cause and effect is of the last importance; not that the circumstances of its being natural or general can be regarded as any evidence of its being just and proper, nor that any appeal should be made to vulgar opinions and prejudices, which have often been called Common Sense, for the validity of that fundamental principle in science; but that the precise import and extent of that notion being once ascertained, it will be possible, which otherwise it would not be, to find out whether it be just and rational, or erroneous and groundless, or in what respects it is just, and in what erroneous;

neous; that is, in other words, to discover how far it coincides or is inconsistent with what we know of the established laws and order of nature.

If we find, on careful examination, that there is among things and events a relation corresponding to our common notion of cause and effect, this notion, I think, may with sufficient propriety be pronounced just and rational. But if there be in fact no such relation among things and events, or if we can find no proof of there being such an one among them, then I think our notion of the relation in question must be pronounced either wholly or partly erroneous and groundless. If we find that there are among things and events several different relations, all of which have occasionally been expressed by the terms *Cause* and *Effect*; that there are not only very different kinds of *Events* or *Effects*, (which indeed is self-evident), but also different kinds of *Causes* or *Principles of Change*; and that between each of these and its corresponding event there is something peculiar or specific in the relation, besides

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besides what is general or common in all such relations; then I think it must be an important object in philosophy to attend to all these different *Relations of Event*, to investigate as far as possible the nature of every kind of Cause, to ascertain the peculiar province of each, and to refer every kind of event or effect to its own proper cause or principle of change. And if we find that many events proceed from a concurrence or co-operation of two or more different kinds of causes, it must be the business of Philosophy to ascertain such concurrence, and to discover what share each kind of cause has in the production of those phænomena which we observe and refer to them.

Many philosophers have overlooked, what appears to me obvious to our unassisted faculties, and generally acknowledged by mankind, and what I find on the most careful examination to be true, that there are many different relations, as well as different kinds of event, many different kinds of causes, and often the concurrence of several kinds of causes in the production



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tion of one event. And such philosophers, in consequence of their inattention to some of these obvious truths, and an ill-judged and ill-placed love of simplicity, and an eager desire, to which we are by nature prone, of referring things to as few principles as possible, have sometimes fallen into confusion and error, even of the most extravagant kind, in their speculations; by endeavouring to refer every kind of event or effect which they observed to one kind of cause. The kind of cause which has been thus favoured in preference to all others, and regarded as the only principle of change, has been different with different philosophers, according to their several tastes or fancies, and very much according to the kinds of event and cause which had chiefly engaged their attention. The inevitable consequence of this conduct has been, to perplex this essential part of philosophy, and to retard the progress both of physical and metaphysical science. And it is chiefly by following the very opposite conduct, that I think we may hope to acquire real and useful knowledge of the subject in question; by  
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attending to those differences, which have been so generally disregarded among the several kinds of events, and of causes, and of relations of event and cause, and to the frequent co-operation of different kinds of causes; with a fixed distrust of all the philosophical notions and doctrines that have ever been inculcated on the subject; but with due regard to the natural suggestions of the human faculties, and a sacred reverence to those fundamental laws of human thought, according to which even our observations must be made, as well as our inferences drawn, and our ultimate opinions formed.

The expedient which I propose will not be thought unpromising, nor inadequate to the end in view, if it be considered, that it is chiefly or solely by the same kind of attention to resemblances and differences among all the various tribes of objects which Nature presents to us, without regard to authority or prejudices, but with due deference to the natural laws of thought, that we acquire all the knowledge that is competent to our faculties,  
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of those objects, of their qualities, and of their relations. We know little, indeed, of what any thing is in itself; but much of what many things are with respect to one another, wherein they agree, wherein they differ, and how they stand related.

The simplicity and seeming obviousness of the expedient may make it wonderful that it had not been employed long ago, but can be no objection to its use: on the contrary, should be rather a recommendation of it. We have many instances, more important in themselves, and more nearly akin to the subject in question, than making an egg stand on its end, or breaking a bundle of rods, how effectually a purpose, seemingly difficult, if not impracticable, may be accomplished by means the simplest and most obvious, which in one point of view it appears strange that any person should have overlooked.

The vast fabric of natural science, the glory of modern times, has all been rear-

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ed by such simple means; and the great merit of BACON was, that, in an age of darkness, and of prejudice worse than ignorance, he had penetration to perceive, and judgement to value as they deserved, and force of mind to recommend to others, those simple but effectual means for the attainment of knowledge, which, now that we have been so long accustomed to see them successfully employed, appear to us so natural and obvious, that we are apt to wonder, and even disposed sometimes to inquire philosophically, how it came to pass that they were so long, or that they were ever neglected.

That part of science which I wish to explore is at present, in point of confusion, and obscurity, and prejudices, and dogmatical opinions repugnant to nature and to reason, in almost as bad a state as the whole of Natural Philosophy was two hundred years ago, before the genius of BACON began to enlighten the realms of Science; and the means which I propose to employ in the investigation of it are precisely those which he recommends. As  
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it is difficult to do justice to his sentiments in any language but his own, I quote his words :—*Nemo adhuc tanta mentis constantia et rigore inventus est, ut decreverit et sibi imposuerit, theorias et notiones communes penitus abolere, et intellectum abrasum et æquum ad particularia de integro applicare. Itaque illa ratio humana quam habemus, ex multa fide, et multo etiam casu, nec non ex puerilibus, quas primo hausimus, notionibus, farrago quædam est et congeries. Quod si quis ætate matura, et sensibus integris, et mente repurgata, se ad experientiam et particularia de integro applicet, de eo melius sperandum est.—Neque quis nos vanitatis arguat, antequam exitum rei audiat, quæ ad exuendam omnem vanitatem spectat.—Si homines per tanta annorum spatia viam veram inveniendi et colendi scientias tenuissent, nec tamen ulterius progredi potuissent, audax procul dubio et temeraria foret opinio, possem in ulterius provehi. Quod si in via ipsa erratum sit, atque hominum opera in iis consumpta in quibus minime oportebat, sequitur ex eo, non in rebus ipsis difficultatem oriri, quæ potestatis nostræ non sunt; sed in intellectu humano, ejusque usu et applicatione; quæ*

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*res remedium et medicinam suscipit. Itaque optimum fuerit illos ipsos errores proponere : quot enim fuerint errorum impedimenta in præterito, tot sunt spei argumenta in futurum.*

NOV. ORG. 97. 94.

It may be proper to mention, as there is some inaccuracy in the expression of these important observations and precepts of BACON, that he must not be understood to mean, that we ought *completely* to abolish, and renounce *for ever*, *all* our common notions of things; nor indeed any of them, merely because they are common, and original, and the natural suggestions of our faculties. Nor must it be thought that he required of us to endeavour to obtain, by means new and purely artificial, notions of things *totally* different from those which generally prevail among mankind. Such an attempt would be impracticable, and therefore unreasonable; but if it were practicable, it would be in the highest degree improper. The simple genuine suggestions of our natural faculties, or the notions which we  
acquire



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acquire directly by the exercise of them, however imperfect, are, if not universally, at least very generally right; and they are indefeasible by any human power; as much as the laws of Matter and Motion are. But as they are very commonly imperfect, and as many great and valuable additions to them may be acquired by more accurate observation of the things to which they relate, it is necessary to be aware of the certain imperfection of many, and of the possible imperfection of all of them, and of course to be always ready to allow, on proper evidence, every just and authentic addition to be made to them.

Thus, for example, the common notions of Space, Time, Existence, Thought, Memory, Substance, Quality, Quantity, Equal, Greater, Less, and many other things, appear to be not only just, but nearly perfect; nor do I know of any important addition to them respectively that has been made by philosophy; and no man can abolish in himself those notions any more

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more than he can alter his species, his sex, or his stature.

The natural and common notions of Light, and Heat, and Air, and Water, of Seeing, and Hearing, and Breathing, appear to be just, so far as they go; but they are very limited and imperfect. What is natural in them, we cannot set aside; nor ought we to wish to do it. But innumerable great and just additions have been made to those notions, by means of accurate examination of the subjects to which they relate; as for example, the notions we have acquired by philosophy concerning the composition, the refraction, the reflection, the motion, and the velocity of light; the weight, the spring, and the composition of the air; the composition of water; the structure of the eye, and of the ear; the formation of an inverted image on the bottom of the eye; the transmission of vibrations to the labyrinth of the ear; the function of respiration, the means by which it is performed, the subserviency of it to life, &c. And no person of competent judgement can doubt,

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doubt, that, as our knowledge of all these things is still very imperfect, additions may be made to it by the acquisition of new and just notions concerning them; without our ever having occasion to abolish in ourselves any the smallest part of those notions which were the original and spontaneous suggestions of our faculties.

Some of our natural and most common notions appear to be erroneous; possibly in most cases, from some rash and false inference of our reason carelessly employed, more than from any fallacy in our other faculties; as for example, the common notions of the flatness and stability of the earth, and of the diurnal motion of the sun and of the starry heavens. Of the same kind is the common notion with respect to body and motion, including the persuasion that motion, or every body put in motion, always tends to rest. This wrong notion, which proceeds from our commonly observing motion that meets with resistance, Philosophy requires and enables us to correct, by making us observe



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serve motion in various circumstances, especially in bodies that meet with little or no resistance; by the aid of such observations, and strict reasoning from them, we acquire a more just notion of the subject in question, and conceive, that a body, once put at rest, would for ever remain at rest, or once put in motion, would for ever remain in uniform progressive rectilinear motion, if it were left absolutely to itself.

But many more of our *common* notions are not purely genuine and natural, but partly such, and partly the artificial productions of ingenious and speculative men, who were eager to make authentic additions to their natural notions, or, in other words, to extend their knowledge of things, but unluckily mistook the way to do it, and blended their own hypotheses or conjectures with their just but very imperfect natural notions, and the inferences fairly deducible from these. Such conjectures are almost universally wrong, as experience has fully shewn; and, from the nature of our faculties, there is reason to think

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think they ever must be so: but they are often pleasing, like those reveries or waking dreams which many persons of warm imagination, and little vigour of mind, are fond to indulge, not merely to their authors, who commonly regard them with the partial affection of a parent; but to others to whom they are imparted, and who adopt with eagerness imaginary knowledge, that appears complete and important, and is easily and pleasantly acquired. I apprehend it is chiefly such theories or artificial notions that BACON requires us to abolish. They have been pretty effectually abolished, for these hundred years, in most branches of natural philosophy; thanks to his precepts and NEWTON's example: but in some parts of it, particularly in Medicine, they still keep their ground; nor are they yet so completely banished as might be wished from the thoughts, and from the writings and systems, of many who endeavour to cultivate the philosophy of the human mind.

Instances of this kind from medicine would be unintelligible, and perhaps disgusting,

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gusting, to those who are not of the medical profession, and probably disagreeable and unsatisfactory to those who are; for few, if any of us, have learned to consider our own favourite speculations as of the same kind, and the same value, with the systems of others, the imperfections of which even the dullest of us have penetration enough to discover.

In Metaphysics, there has been a most illustrious example of an artificial hypothetical notion, so intimately blended with just and natural notions on the same subject, so generally admitted, unquestioned, in the reasonings of philosophers, and rendered so familiar to us by frequent repetition, and by the expressions of it being adopted in common language, that very few have been found of such vigour and firmness of mind, that they either could or would lay it aside; or distinguish between it and the natural notions with which it has been blended; or prevail on themselves to examine the subject anew by careful observation and experiment, in order to acquire, if such can be acquired, additional



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additional authentic notions with respect to it.—I allude to the notion and the philosophical theory of *Ideas*, or images of things, either in the mind, or at least somehow presented to it; which images, and not the real original things themselves, have been by many philosophers supposed to be the immediate or the only objects of thought in sensation, perception, memory, imagination, judgement, and indeed in every operation of mind, or modification of thought.

This doctrine of *ideas*, with all the system of extravagant and ridiculous consequences which are implied in it, and which have been most acutely deduced and gravely maintained by many distinguished philosophers, I consider as one of the most splendid monuments that ever existed, or probably that ever will exist, of the abuse and perversion of human reason. But as it has been thoroughly examined and completely overturned by DR REID, I have no occasion to consider it minutely; and I allude to it at present only as a particular and very striking illustration

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stration of a general remark, which is indeed an important principle in the cultivation of science.

Though the assumption of hypothetical principles of any kind, and the consequent partial attachment to them, and neglect of accurate observation and experiment, and of strict inductive reasoning, be highly improper, both in physical and in metaphysical researches; yet, on many accounts, they are more peculiarly pernicious, and quite inexcusable in the latter. Some of the principal reasons of this difference I conceive it may be proper to mention particularly, and even to illustrate pretty fully: for though none of them, perhaps, have been altogether overlooked by men of science; yet it is plain, that several of them have been very little attended to.

Every assumption or admission of an hypothesis, as a principle in science, is to be regarded as a kind of anticipation of some new piece of knowledge, which, if ascertained, would be a *Discovery*. Few indeed,

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indeed, if any, discoveries have been made by means of hypotheses; or, in other words, very few, if any hypotheses, have been confirmed, in any branch of science. But in physical science, many curious and valuable discoveries have been made by other means, and are daily making, and I doubt not will continue to be made in it, as long as men shall continue to employ those means which hitherto have been found successful. But the case is widely different with respect to Metaphysics, in which it appears to me, that no discoveries ever have been or ever can be made. This important difference results necessarily from the difference of the subject in physical and in metaphysical inquiries. In the former, the subject is the events that occur in the material world, and the properties and the relations of every kind of body; which cannot be known to us directly or immediately by any kind of consciousness or intuition, but must be learned by careful observation and experiment, and strict induction from these: in the latter, the subject is human thought, the laws of which, that is, the general facts or principles



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principles relating to which, it is the business of the Metaphysician to explore accurately, and to describe faithfully. But in them he can find nothing new or wonderful, either to himself or to others : nothing surely can be conceived more familiar, or better known to mankind, than their own thoughts. Any just account of them will appear at once to all men natural and true, as an accurate description or a good picture of any familiar object would do : any false account of them will at once appear to all men strange and wonderful, and will at once be rejected, or at least greatly distrusted by them ; just as a very bad description of any familiar object, or a bad portrait of an intimate friend, would be. Even the more general facts with respect to human thought, which in one point of view may appear the most abstruse, as being the most uncommon subjects of conversation, or of distinct and separate attention, will, on a closer inspection, be found the most familiar of all, and the best known ; they occur the most frequently ; not indeed simply, but in combination with various particular

particular thoughts in numberless instances. Nor is the want of appropriated words and phrases in common language to express them, and the consequent difficulty and embarrassment that we feel in treating of them scientifically, any proof of their not being familiar to us. The structure of language, which all ordinary men learn sufficiently and easily before they are five years of age, depends much more on the uniform and just conception of certain general laws of human thought, common to all mankind, than on the correspondence of particular thoughts in different individuals. For all general words and phrases, and all inflections, express such general conceptions, which are of many different kinds; while particular thoughts are expressed by proper names, which make but a very small part of even the commonest language, such as is used with perfect uniformity, and propriety, and good understanding, by the most ignorant and illiterate vulgar, nay, very often by young children, who are not only greatly deficient in knowledge, but far from having attained maturity of understanding.

Yet

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Yet even such language as they employ exhibits the result, and contains, or involves in its structure, the evidence of much profound and solid metaphysical knowledge, that is, knowledge of human thought, which, though common to all men, has very generally been neglected by those who undertook to be their instructors.

No language can involve in its structure any more metaphysical knowledge than all men are capable of acquiring; for all men are by nature capable of learning, so as to understand and use properly, any common language: nor can any men understand, and use properly in speech or writing, any language, unless they actually have acquired, and do possess, all that knowledge of human thought, both with respect to particular instances and more general laws or facts, which such language by its structure expresses; though they may find it difficult or impossible to describe intelligibly, or to explain, or to express by general and abstract terms, any part of that knowledge. To suppose otherwise would be



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be as unreasonable and extravagant, as to suppose that men could give to every individual person his proper name, without any previous knowledge of it; or as it would be to suppose, that, without any previous knowledge of the different kinds and sorts of natural objects, such as animals, plants, or minerals, men could apply to all of them uniformly and properly their respective general names, in any, or in every language. Now, such suppositions are repugnant, not only to matter of fact and uniform daily experience, but even to the very notion of language, and to the necessary relations between words and thoughts; they are not merely false, but absurd; they are such things as every person of sound judgement must perceive intuitively, without any trial, to be impossible.

But though it be plain, that the structure of language can express nothing with respect to human thought but what men have known, and what all ordinary men are capable of understanding, and might, and probably would, have learned of

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themselves,

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themselves, yet we must not suppose that the converse of this proposition holds true, and that nothing more has been thought by men, than what we find expressed or involved in the structure of language; for example, that no other distinctions in point of thought have been made by men, than what they have words to express. The truth is, that no language whatever is near so perfect, I mean so accurate, so distinct, and so varied, as human thought; nor can any language ever be made so: and different languages are in very different degrees of perfection, with respect not only to copiousness, but to accuracy and distinctness in the expression of thought.

It cannot reasonably be doubted, that many men who have no use of artificial or grammatical language, I mean such as are born deaf, and are consequently dumb, and who have not been instructed in written language, have yet on other subjects, except language and sounds, the same thoughts as other men have: for such dumb persons are not in general idiots;  
many

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many of them, on the contrary, have shewn remarkable good sense in their conduct, and even quickness and acuteness in the acquisition of certain kinds of knowledge; which implies their perceiving and understanding the same things, and making the same distinctions that men do who have the use of language. Now, all men have numberless thoughts, both general and particular, which are no more expressed in language than the thoughts of dumb men are; and many others, which are expressed in language very imperfectly; sometimes, for example, so obscurely as not to be fully or clearly understood; sometimes so ambiguously, that one thought shall be suggested when it is intended to convey another, or that different thoughts shall be unnaturally and unreasonably blended together.

These things have not been sufficiently attended to by some philosophers, who were sensible of the evidence which language afforded of the general laws of human thought, and who have endeavoured to avail themselves of it in their researches.



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Many instances might easily be given, and some I shall soon have occasion to consider, of very great errors proceeding from such inattention to the imperfections of language; indeed every piece of false reasoning, depending on the ambiguity of any word or phrase, of which there have been many with respect to the philosophy of causes, some of them so extravagant as to appear absurd and ridiculous, may fairly be regarded as an example of an error proceeding from a hasty inference from the structure of language.

Every such error will have the appearance of a discovery in Metaphysics, and will naturally attract the attention and excite the admiration of those who know not the proper objects and the limits of this part of science; while, on the contrary, no just account of any particular fact, or of any general law of human thought, and no inferences from such laws, however acute and profound, and no application of them, however extensive and important in explaining particular phenomena, can have the charm of novelty,

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velty, or the appearance of discovery. But every thing which has the appearance of discovery in Metaphysics is to be distrusted on that very account; and it ought even to be rejected, as at least an error in science, if not an imposition on mankind, unless it can be shewn, that it is no discovery, but such a truth as every person will feel and recognise in himself by due attention to his own thoughts; and that it had the appearance of a discovery, only because the subject of it had not before been attentively considered and properly expressed in words.

What some ancient philosophers have whimsically and very erroneously asserted with respect to the learning of all science, namely, that it is only a kind of reminiscence of what we had known before, or, as they supposed, in a former state, is almost literally true with respect to the science of the human mind.

On this principle depends a curious and important difference in the way in which physical and metaphysical science may be taught.

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taught. No part of the former can ever be taught, or produced in the learner, by putting questions to him, his answers to which shall almost certainly contain and express the truth, both as to particular facts and general principles, with respect to the subject of investigation; but every part of the latter, I believe, may be investigated and communicated in that way. Of this we have a most beautiful specimen in the *Memorabilia* of SOCRATES. The subjects of discussion in those admirable dialogues all belong to the science of mind; such as, the principles of natural religion, of morality, of the œconomy of human life, of politics, &c.; and his peculiar mode of philosophising secured to him all the advantages of the *inductive* mode of reasoning; especially due knowledge of the particular facts from which his general conclusions and principles were to be derived. This circumstance of itself was sufficient to give him an infinite superiority over his cotemporary philosophers, who, in their researches and reasonings, proceeded on what may be called the *dogmatic* plan; beginning with vague, hypothetical,



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hypothetical, and often erroneous principles, perhaps with arbitrary, and bad, and almost unintelligible definitions, and reasoning strictly, and often with admirable acuteness, from such definitions and principles to conclusions which they were at no pains to verify as matters of fact, many of which were extravagantly false, and others so frivolous, that it was of no consequence to mankind whether they were true or false.

What SOCRATES did in Ethics may be done by the same means in every branch of Metaphysics; in the history of our various faculties of perception, memory, imagination, abstraction, judgement, &c.; and in logic, grammar, (I mean the general principles of grammar, which are common to all languages, and not the particular rules of grammar that are peculiar to certain languages), rhetoric, poetry, and in general the principles of taste and criticism; nay, even in those ultimate principles of physical science which I propose to consider, and which have their foundation in the laws of human thought.

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I do not mean to say, that every philosopher, or that every pedant, who may fancy himself qualified for such an undertaking, and shall choose to make the attempt, will succeed in it: I am well convinced, that not only much knowledge of the subject, but also uncommon strength of understanding, and clearness of apprehension, and acuteness and quickness of judgement in perceiving relations and necessary consequences, and great candour, both in point of freedom from prejudices and openness to conviction, and a superiority to those embarrassments which proceed from the ambiguity and other imperfections of language, and, above all, a peculiar talent of communicating thought concisely, clearly, and forcibly, are as necessary to enable men successfully to cultivate and to impart knowledge in that way as in any other. I do not believe that one man in ten thousand could have done what SOCRATES did in this way, even in Ethics; and I believe there are many thousands of very honest and sensible men, who would find themselves utterly unable to imitate his dialogues,  
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even on moral subjects, though with the advantage of his example as a model to regulate and direct their efforts. I only mean to say, that in the whole science of mind, from the nature of the subject, and of the various phænomena which are to be considered, the Socratic method of instruction is rational and practicable; and that by men of real genius and knowledge, it may occasionally be employed with success.

But in physics the same mode of instruction is impracticable; and to attempt it would instantly appear absurd. If the greatest philosopher in the world, and the best informed in all branches of physical science, should take it into his head to instruct the ignorant vulgar, by putting questions to them concerning the law of gravitation, and the motions of the planets, and the ebbing and flowing of the sea, and the properties of light, and the weight and spring of the air, and the composition of air and of water, nay even concerning the structure of their own stomachs, and eyes, and brains; what success

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could he ever meet with? What kind of answers could he be supposed to receive from those whom he wished to instruct? What would be thought of such a philosopher? To me it appears abundantly plain, that the very materials for philosophising in that way on physical subjects are wanting; while on metaphysical subjects they are plentifully present in the bulk of mankind.

Any person in the least acquainted with the philosophy and with the genius of SOCRATES, will know perfectly what he would have thought and said of such a mode of instructing men in physical science. He would have told the philosopher at once, that his undertaking was just like the attempt of a midwife to deliver a woman that was not with child.

It is nowise surprising, that the eager desire and constant unavailing attempt to make discoveries in metaphysics, should have prevailed in ancient times, and among those who cultivated the school philosophy, both before and after the revival  
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of letters; for it is plain, that in those times neither the proper method of philosophising, nor even the very objects of philosophy, were at all understood. It appears, I think beyond a doubt, that those who were most eagerly engaged in the cultivation of different parts of science, and who, from their talents and knowledge, had the fairest prospect of success in their inquiries, did not know what were the limits of human knowledge, and of course were often most diligently employed in the pursuit of objects that were absolutely unattainable: as, for example, when they attempted to reason *a priori* concerning either body or mind, from certain arbitrary principles, and imperfect, confused, or erroneous notions, not a jot the better for being expressed, as they often were, in the form of definitions; or when, instead of observing, comparing, and arranging particular facts or phænomena in any part of science, and from them deducing the general principles or laws of that part of nature, they endeavoured to find out or explain, or, more properly speaking, to *guess*, how those phænomena were produced; or

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when, adopting as a just philosophical principle, that pleasing, but very vague analogy, which all mankind have acknowledged, between mind and body, between things intellectual and things material, they endeavoured to explain some of the phenomena of human thought on physical principles, and many of the phenomena of the material world, especially motion, on what may be called metaphysical principles, or the supposed operation of mind.

That analogy between things intellectual and things material must no doubt be striking; for all mankind have perceived it, and adopted it in the very first formation of their language: yet I believe the most acute and enlightened philosophers would find it difficult in most cases to trace it, or to specify wherein it consists; for surely no things can be conceived more completely different than the qualities of body and the modifications of thought. I should think the nature of this singular and remote analogy, which cannot be altogether fanciful, might be a curious, and  
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perhaps an useful, subject of investigation. But hitherto it has been only a plentiful and most pernicious source of confusion and error, both in physics and in metaphysics, and particularly of *discoveries* in the latter; all of which are errors. Possibly a fair and very strict examination of that analogy, and the precise knowledge which may be thereby acquired of the differences, as well as of the resemblances, of certain things which we are accustomed to blend in our thoughts, will be found the most effectual or the only way to eradicate some very erroneous principles, which have had a very extensive and permanent influence in science; and which, by being almost universal among mankind, and familiar to us from our earliest years, have often been regarded as unquestionable truths, and indefeasible laws of human thought. Some attempts of this kind I have had occasion to make in the course of my inquiries: with what success the reader must judge.

But though it was natural for philosophers, who had but very imperfect and  
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erroneous notions of the proper objects and proper method of scientific investigation, to endeavour to make discoveries in metaphysics; yet it is very remarkable, and not easily to be accounted for in a satisfactory manner, that long after the precepts of BACON were generally known, and even after the example of NEWTON had fully explained those precepts, and had shewn how just and important they were, almost every Metaphysician would still persist in making discoveries in his science. LEIBNITZ, though a man of uncommon talents and very extensive knowledge, and an excellent mathematician, and well versed in physical science, was unluckily a great discoverer in metaphysics; and he succeeded accordingly. MR LOCKE, who was certainly a man of strong and sound judgement on almost every subject, and a great and original genius in this branch of science, had the same unfortunate attachment to discoveries in metaphysics; especially on the principle of the doctrine of Ideas. This frustrated completely much of his labour, and in some measure weakened and corrupted his whole

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whole system of philosophy. There was a time when the metaphysical doctrine, that heat, and cold, and colour, and other secondary qualities of body, were only ideas of the human mind, and no qualities of bodies, was regarded as a discovery as real, and perhaps an addition to science as important, as NEWTON's investigation of the law of gravity, and of the motion and composition of light. BERKELEY and HUME followed the same plan of discovery in metaphysics with still greater diligence, and proportionable success. DR PRIESTLY, and many others of less note, have followed nearly the same plan; sometimes adopting and maintaining with eagerness the discoveries of their great predecessors, sometimes favouring the world with further discoveries of their own, precisely of the same value with those that went before them.

Let it be remembered, however, for the honour of human reason, that before DR PRIESTLY had begun his discoveries in metaphysics, and before DR REID had exposed to deserved contempt the discoveries

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ries of preceding Metaphysicians, there had been at least one author who had so much good sense, and such just notions of science, as to perceive and to explain clearly the futility of such discoveries. I mean Mons. D'ALEMBERT; whose words I quote.

*On peut dire en un sens de la Metaphysique, que tout le monde la fait ou personne, ou pour parler plus exactement, que tout le monde ignore celle que tout le monde ne peut savoir. Il en est des Ouvrages de ce genre comme des Pieces de Theatre; l'impression est manquée quand elle n'est pas generale. Le vrai en Metaphysique ressemble au vrai en matiere de Gout; c'est un vrai dont tous les esprits ont le germe en eux memes, auquel la plupart ne font point d'attention, mais qu'ils reconnoissent des qu'on le leur montre. Il semble que tout ce qu'on apprend dans un bon Livre de Metaphysique, ne soit qu'une espece de reminiscence de ce que notre ame a deja su; l'obscurité, quand il y en a, vient toujours de la faute de l'Auteur, parce que la Science qu'il se propose d'enseigner n'a point d'autre langue que la langue commune. Aussi peut-on appliquer*  
aux

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*aux bons Auteurs de Metaphysique ce qu'on a dit des bons Ecrivains, qu'il n'y a personne qui en les lisant, ne croie pouvoir en dire autant qu'eux.*

*Mais si dans ce genre tous sont faits pour entendre, tous ne sont pas faits pour instruire. Le mérite de faire entrer avec facilité dans les esprits des notions vraies et simples, est beaucoup plus grand qu'on ne pense, puisque l'experience nous prouve combien il est rare; les saines idees metaphysiques sont des vérités communes, que chacun saisit, mais que peu d'hommes ont le talent de developper; tant il est difficile, dans quelque sujet que ce puisse etre, de se rendre propre ce qui appartient a tout le monde. Je ne crains point que ces reflexions blessent nos Metaphysiciens modernes; ceux qui n'en sont pas l'objet y applaudiront, ceux qui pourroient l'etre croiront qu'elles ne les regardent pas; mais les Lecteurs sauront bien distinguer les uns des autres.*

MELANGES, vol. 4. art. VI. p. 45.

These observations of M. D'ALEMBERT  
appear to me unquestionably just, and  
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highly important: indeed I know of no author who seems to have had a clearer or better notion of the nature and proper objects of metaphysical researches, and of the real value of them, than he had. I have had occasion accidentally to learn, that D'ALEMBERT continued of the same opinion long after DR PRIESTLY's metaphysical discoveries were published to the world; and that he expressed the same sentiments very happily, and in a manner truly laconic, for it was in one word, a short time before his death.

A friend of mine, a gentleman well known in the literary world, happening to be at Paris in 1783, had the honour of being introduced to D'ALEMBERT. The conversation naturally turning on English literature and science, the name of DR PRIESTLY was mentioned of course: one of the company (not my friend) observed, *C'est un Homme qui a fait de grandes Decouvertes dans la Physique et dans la Metaphysique.*—

D'ALEMBERT. *Decouvertes dans la Metaphysique!* DIABLE!

Now,



Now, this apophthegm cannot be properly translated: for the simple word *Diable*, pronounced with the proper emphasis, (which I am well assured it was at that time), expresses with mathematical precision, worthy of D'ALEMBERT, the full value of all the discoveries that ever were or ever will be made in Metaphysics; DR PRIESTLY's included.—I believe, indeed, DR PRIESTLY has carried the joke a good deal further, and has for some years past been diligently employed in making discoveries in Theology. This I, who am no Theologian, and have not the smallest ambition to become one, should have been very apt to pronounce, *Nihil aliud agere, quam si des operam ut cum ratione insanias*: but I understand that he has been wonderfully successful in his theological discoveries; and that he has actually made more such discoveries already, to his own share, than all the Bishops and all the Doctors of Divinity of the two Universities in England have done since the Reformation; which is certainly great encouragement. For, at this rate, we may reasonably expect to have, in two or three years, a

complete new system of Theology, as different from the old as the philosophy of NEWTON is from that of ARISTOTLE; but whether it will be as great and as useful an addition to human knowledge, I think may reasonably be doubted. D'ALEMBERT, who, though no Theologian, was a man of excellent understanding, and very extensive knowledge, seems to have placed discoveries in Theology in the same category with those in Metaphysics.

*Il n'y a proprement que trois genres de Connoissances ou les decouvertes n'aient pas lieu; l'Erudition, parce que les faits ne se devinent, et ne s'inventent pas; la Metaphysique, parce que les faits se trouvent au dedans de nous-memes; la Theologie, parce que le depot de la Foi est inalterable, et qu'il ne sauroit y avoir de Revelation nouvelle.*

MELANGES, vol. 4. p. 292.

It is very unfortunate, that out of only three subjects in which discoveries cannot be made, DR PRIESTLY should have pitched

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pitched on two, in which he will insist on making discoveries.

As I have not the honour of being personally acquainted with DR PRIESTLY, I cannot judge with certainty, whether it will be possible to explain to him properly, so as to make him fully understand, these observations which I have quoted from Mons. D'ALEMBERT: but from what I know of him by his writings, and by some little correspondence that I have lately had with him on the subject of one of my Essays, I can easily perceive, that such an undertaking, if it be at all practicable, must be a work of infinite labour and difficulty, and will probably meet with very obstinate resistance on his part; nor can it reasonably be doubted, that, if it were at last, by the persevering efforts of his friends, happily accomplished, he would instantly exclaim, as the philosopher of *Argos*, so honourably mentioned by HORACE, did on a similar occasion, *Pol, me occidistis amici, non servastis; cui sic extorta voluptas, et demptus per vim mentis gratissimus error*. Nevertheless, I hope some of  
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his friends will fairly make the trial, and that they will not be easily discouraged; for if DR PRIESTLY could by any means be made to understand those important remarks of the French philosopher, it would be impossible for him to dissent from them; the scales would instantly fall from his eyes, and he would be *ipso facto* cured of that unhappy disease of making discoveries in Metaphysics and in Theology; which is a consummation for many reasons devoutly to be wished.

But though I conceive that no discoveries can be made in metaphysics, and that all philosophers who cultivate this part of science ought always to distrust and to avoid every thing which has the appearance of discovery in it, it is not my intention to depreciate the whole or any part of the philosophy of the human mind, nor to represent it as either inscrutable in itself, or as unattainable by us, and placed by Nature beyond the reach of our faculties. I acknowledge it to be not only a pleasing, but an interesting, and, in many respects, a very useful branch of science.

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I acknowledge that considerable progress has been made in the cultivation of several parts of it, by many different philosophers. I can have no doubt, that much greater progress will yet be made in it by those who shall cultivate it in a proper manner, on just principles, and, above all, with just notions of the objects and the limits of it. I regret that so much bad reasoning and imaginary knowledge, and so many pretended discoveries in this part of science, have, during many ages, been successively obtruded on the world; for this has not only corrupted the science, and retarded its progress, but almost brought it into general contempt. The very name of it, which, to say the truth, is of itself almost ridiculous, and was given originally by mere accident to certain lucubrations of ARISTOTLE, is very commonly regarded and employed as a term of contempt and reproach.

Those lucubrations of ARISTOTLE, which, in consequence of their having been composed or published after his books on physics, got the title of Metaphysics,

physics, are of as little value as his physics; and worse can scarce be said of them. A great part of them, indeed, differs very little from the doctrines comprehended under the title of Physics in the works of ARISTOTLE; so very little indeed, that I am confident many persons, both good scholars, and men of science, might read whole pages selected promiscuously from his physics and his metaphysics, without knowing, or thinking it worth their while to inquire, which was which.

But the term *Metaphysics* has long been employed and understood to denote those parts of science whereof the subject is the human mind, and its various operations, or, in other words, all modifications of thought, in contradistinction to physics, whereof the subject is body, and the various changes that occur in it. A rational history of the various operations of thought, a natural and good arrangement of them, an accurate examination and comparison of them, so as to ascertain their various relations, and wherein they agree and wherein they differ, are surely things



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things attainable, and perfectly within the reach of our faculties. The result of such an investigation will be, if not the discovery, at least the more distinct and more perfect knowledge, and the firm establishment, of certain general principles; and ultimately a system of science will be formed, bearing that relation to the particular phenomena of mind, which physical science bears to the phenomena of body.

From the avidity with which many pieces of false metaphysical science have been studied and adopted, and from the pleasure and exultation which many philosophers appear to have felt in the acquisition of such imaginary knowledge, we may judge how great and permanent a gratification men may derive from the attainment of real knowledge in this part of philosophy. The case is precisely parallel to what took place for many ages with respect to physical science, which still had charms to engage the attention of philosophers, and to excite the admiration of others, tho' it was corrupted by the grossest errors,

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errors, and thereby rendered useless to mankind.

More certainly we may infer from the success which hath attended the attempts of some men of real philosophical genius, what may be done even in metaphysical science; and what pleasing and useful purposes it may serve.

All ages and nations have done justice to the merits of the Ethics of SOCRATES; and I should think there must be either a wonderful defect, or a singular perversion, in the faculties of any man who could peruse his *Memorabilia*, without much pleasure and instruction. Yet they contain nothing that has even the appearance of novelty or of discovery; nothing but what every person will recognise at once as plain and familiar truth, whenever it is fairly stated to him; nothing, in short, but what we could easily believe might have been obtained in the form of answers to plain questions, fairly put, to any man of common sense and common honesty. The charm of those specimens of the *Socratic* philosophy

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philosophy chiefly consists (as it appears to me) in the plainness, the clearness, and the precision, with which many important truths are expressed, congenial to every understanding that is not corrupted by false science; and in that simplicity and force with which many important precepts are conveyed, welcome to every heart that still can feel the glow of virtue. This is indeed eloquence of the highest kind, peculiarly well adapted to the purpose in view, and far superior to that employed by PLATO on the same subject. Though it be easy to recognise, in many of his dialogues, the sentiments, and reasonings, and illustrations of SOCRATES; yet it is impossible not to perceive, that they are often blended with many of PLATO's own speculations; which have the appearance, without the reality, of more profound knowledge, but are, in truth, less intelligible, less satisfactory, less forcible, and less applicable to practical use, than the modest wisdom of SOCRATES. While the dialogues of XENOPHON, if not perfectly genuine conversations of his master, are at least so judiciously completed, that no



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interpolation can be discovered ; nor any incongruity perceived, in the sentiments, the illustrations, or the manner of reasoning.

Philosophers in every age have done justice to the Logic of ARISTOTLE, which indeed may fairly be regarded as one of the most profound and perfect investigations that the world has yet seen of any part of the philosophy of human thought. It shews in the clearest light the acuteness of his understanding, the force of his mind, and his capacity of close and patient thinking : for by such thinking alone, that almost perfect history and theory of some of the most profound and abstruse operations of the human mind must have been accomplished : they surely contain no discoveries, nor any thing that strictly speaking can be called a novelty. Nothing that ARISTOTLE hath taught concerning proposition or syllogism could appear new or wonderful to any person ; all that he hath delivered with respect to them is only a distinct, and accurate, and truly philosophical, account of what every

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ry person must recognise in himself to be just, though he never attended to it so minutely, nor understood it so clearly before. I can scarce think that even the most enthusiastic admirers of ARISTOTLE and his philosophy could ever believe that he *discovered* any kind of syllogism; or that any kind of syllogism was good or bad, because he pronounced it to be so. If any of them did believe so, they were wonderfully mistaken: he only analysed propositions and syllogisms, and enumerated, and described, and arranged the various kinds of syllogisms, in which, as he found by due attention to his own thoughts, and perhaps occasional reference to the thoughts of others, men naturally and inevitably acquiesced. They did so before he existed: they do so at this day, in countries in which his philosophy and his name are still unknown. Possibly to many persons the Logic of ARISTOTLE will appear to partake more of novelty and invention, and to approach more nearly to the nature of a discovery with respect to human thought, than I have here represented it. But this proceeds entirely from  
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from the obscurity of it, and the extreme difficulty of apprehending or learning it; and this obscurity and difficulty proceed merely from the very abstruse manner in which it is expressed, which is almost always in the most general, and abstract, and technical terms, without the necessary examples and illustrations: for whenever these are given, all obscurity and difficulty with respect to it are at an end; and the learner is naturally disposed to wonder how things so plain and easy could ever have been rendered difficult and mysterious. The next step very often is, to regard the whole of it with indifference and contempt: but this is unjust; for it is not only interesting as a matter of curiosity, and a profound and accurate investigation of the subject, but it has a certain, though no doubt a very limited kind of usefulness in science, by enabling men to detect false reasoning with more ease and certainty than otherwise they could have done. It must ever be a matter of deep regret to all lovers of science, that the importance of that kind of Logic should have been so much over-rated, and even the use  
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of it so completely mistaken, by ARISTOTLE and his followers. They unluckily considered it as a proper and almost necessary instrument for the cultivation of science: but this is so far from being the case, that it may justly be regarded as one of the most preposterous instruments that could be employed for that purpose. Far from enabling men to make progress in science, it effectually prevented all who employed it from ever doing so; and was in truth a perfect nuisance in every part of science in which it was introduced. I do not think it is going too far to say, that ARISTOTLE's Logic, or, to speak more properly, the absurd use that was made of it, was the chief thing that stopped the progress of all useful knowledge for more than two thousand years.

We have a corresponding instance, equally striking, and much more pleasing, of the influence of metaphysical speculation on the progress of useful knowledge, in the Logic, for so it may well be called, of BACON; I mean, his principles and his precepts with respect to the proper method

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thod of cultivating science. These we find dispersed, and occasionally illustrated, in all his philosophical writings; but more systematically arranged, and more concisely and forcibly expressed, in the first book of the *Novum Organum*.

All these speculations of BACON may fairly be reckoned metaphysical: they are in truth the Metaphysics of the study of nature: they are a rational, and acute, and profound investigation, and a distinct exposition, of those laws of human thought, by which alone we are enabled to acquire accurate and extensive knowledge, either of ourselves or of the great world around us. Every person who understands the philosophical writings of BACON must know, that profound metaphysical knowledge is neither unattainable by men, nor unsatisfactory to their understandings, nor frivolous in itself, nor useless in science. I know not that NEWTON's investigation of the law of gravity, and of the composition of light, can justly be pronounced more important or more useful than BACON's metaphysical lucubrations; nor do

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I conceive, that they have done more honour to human reason, or shewn in a stronger light the superiority of that genius which first perceived them, and understood their importance, and explained to others the useful application that might be made of them.

Yet even BACON's philosophy is no *discovery* in Metaphysics; nor must we imagine that he thought it such, from his calling it a *New Instrument*. The practical rules or precepts, deduced from his metaphysical speculations, might justly in his time be regarded as a new and valuable instrument in the hands of philosophers: but the principles on which those rules are founded could no more be thought discoveries, or novelties, in human nature, than the moral precepts of SOCRATES, or the logical rules of ARISTOTLE. They are plainly such truths as every person of competent judgement, and power of attention to his own thoughts, must at once recognise in himself. Many of them, doubtless, must have been perceived and acknowledged by preceding  
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observers and inquirers in different parts of science; as, for example, by SOCRATES himself: it is highly probable, that in the course of the gradual improvement of science, many more, or perhaps all of BACON's observations and reasonings would have occurred to other philosophers.

It would be unreasonable indeed to suppose, that the revival of science, and even the possibility of cultivating it with success, should have depended on the genius of any individual. It is certain, that long before the time of BACON, perhaps even before the invention of printing, and the consequent revival of letters in Europe, but certainly immediately after that time, men began to awake out of that lethargy in which they had slept for more than a thousand years of the darkest and most barbarous ignorance. Their first efforts were naturally, and in part usefully, employed in studying the works of the ancients; in translating them, and commenting on them; in explaining all their sense, and vindicating all their nonsense:  
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for the admiration of the restorers of learning for every remaining monument of ancient knowledge, knew no bounds. But when this first warm zeal for the all-sufficient labours of the Ancients began to cool, their defects and their errors in many parts of science, and especially in every branch of natural philosophy, were perceived; and accordingly, before and during the time of BACON, several men of genius, as for example GALILEO in Italy, and GILBERT (who writes *De Magnete*) in England, began to cultivate the science of nature on a more rational plan, and with more success, than any of the ancients had ever done, and in a manner not very different from that recommended in the *Novum Organum*. It is very remarkable, that BACON takes so little notice of GALILEO and his writings; with some of which, as well as with the history of his great cotemporary, he must have been acquainted. As to his own countryman, GILBERT, it is plain, that he was well acquainted with his works; for he mentions them often, and very particularly, and generally with a degree of contempt

which they do not deserve. It should seem that BACON himself did not clearly perceive the merit of those first imperfect attempts towards cultivating science on the plan which he was at that very time recommending to all philosophers. But though he did not, others would have perceived the merit of them, and would have endeavoured to imitate them, probably with various degrees of success: and it cannot be doubted, that by careful observation, and comparison of the labours and of the success of those philosophers who cultivated science in that manner, men would gradually have learned the proper method of philosophizing. So they would have discovered America in a little time, and by gradually improving and extending their navigation, though COLUMBUS had never existed; as in fact they did discover some part of it, by a kind of accident, in a few years after his first discovery. Yet it is for the honour of human genius, that it was first discovered by his bold, but judicious and well-conducted enterprise.

But



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But it is not for those who cultivate the philosophy of the human mind, to emulate the fame of the discoverers of new worlds: that glory belongs to those only who can explore the unknown regions of the great world around them. The speculations of even the greatest and most successful metaphysical inquirers may be justly compared to a careful survey and accurate delineation of our native country; which, though a great and useful work, could never have given scope to the great soul of COLUMBUS, nor called forth the genius of the undaunted and persevering COOK. Or we may compare the work of the Metaphysician to a plain mirror, which all will acknowledge to be a valuable instrument, though it neither excites our admiration, nor extends our views of nature, like the reflecting telescope. And surely a philosopher, whose darkened eye can find no pleasure in viewing the image of his hoary hair and withered face, may find much pleasure and advantage in the use of a mirror that shall faithfully and distinctly reflect to him the features of his mind.

Such

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Such an instrument every good metaphysical treatise ought to be; and many such will yet be needed to enable mankind to see and know themselves with that clearness and precision which are to be wished, and certainly may be attained. For there is an infinite difference between that vague, superficial, and inaccurate knowledge of human nature, which all men of common understanding acquire by a kind of instinct, and that clear, precise, and accurate knowledge of it, which may be acquired by careful scientific investigation. The difference is almost as great, though not of the same kind, as that between the inaccurate and superficial knowledge of external objects that all men naturally acquire in the first years of their lives, and the more perfect and scientific knowledge of them which philosophers acquire by more careful examination and study.

A certain degree of knowledge of the qualities and relations of the material objects around us, is indispensably necessary for the comfort, and indeed for the preservation,

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vation, of human life; and Nature hath taken effectual care that we shall acquire such knowledge, even in our earliest years, by the spontaneous suggestions and the instinctive exercise of our faculties. It would be difficult, or perhaps impossible, to estimate, with any degree of precision, the amount of the knowledge of the things around us, which we acquire in that way: nor is it necessary to make such an attempt. We are all disposed to undervalue it, and think it little in comparison of what we afterwards acquire by our deliberate exertions, because it is common to all men, because we do not remember ever to have been destitute of it, and because we acquired it without labour, nay perhaps with pleasure, when engaged in the pursuit of very different objects, and when we never even suspected that we were learning any thing. Yet we may easily convince ourselves, both of the importance and of the extent of the knowledge which we acquire of the world around us, by the spontaneous exercise of our faculties; if we will but consider the very different degrees of knowledge of a newborn



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born infant, and of an ordinary child of seven years of age, however little artificial instruction the latter may have had. A child could hardly (without the constant and very extraordinary care of other persons) escape destruction for seven years, unless it had acquired much knowledge of the things around it. The same may be said with respect to the inferior animals; but as their faculties are infinitely inferior in degree, if not in some measure different in kind, from ours, it is scarce allowable to make the comparison. But a child that did not plainly shew, long before it was seven years of age, that it had acquired and was acquiring much knowledge of the material world, would justly be regarded as an idiot.

The case is precisely the same, though perhaps it will not be so readily acknowledged, with respect to the *metaphysical* knowledge which we acquire in our early infancy; I mean, that knowledge which we acquire of human nature, without labour or difficulty, by the spontaneous exertions of our faculties, and by our occasional

sional attention to our own thoughts, and to the conversation and actions of others. I will not contend, that this general and almost instinctive knowledge which we acquire when children, of the principles of thought and of action among mankind, is as immediately and constantly necessary for our preservation, as the knowledge of the material objects around us; but it is just as necessary for our intercourse with one another. Without it, even language (as already mentioned) could neither be learned nor employed; nor could the actions of an individual who had not acquired the ordinary knowledge of human nature correspond to those of others. A child who was incapable of acquiring, or would not learn, those rudiments, if they may be so called, of Metaphysics, would as certainly and as justly be reckoned an idiot, as one who was ignorant of the commonest effects of fire, or of water, or of gravitation.

Imperfect as those rudiments of the philosophy of mind may justly be thought, it appears at least that they are sufficient for

the purposes of common life; just as the corresponding rudiments of the knowledge of external nature are sufficient for the preservation of mankind. And in both parts of science equally, the pleasure and the solid advantage that mankind have derived from a very limited and imperfect knowledge, should encourage them to extend and to improve their knowledge to the utmost of their power.

I am sensible that many men of the greatest talents, and most extensive knowledge, have regarded all metaphysical speculations with contempt, as not only useless, but pernicious in science. Though this persuasion be rash and unphilosophical, it is by no means unaccountable; and I think it may fairly be regarded in the same light, and explained on the same principles, as SOCRATES's distrust and contempt of astronomy, and indeed of all profound philosophy. Such a persuasion must, in the present age of the world, and in the present improved state of astronomy, and of many other sciences, appear almost incredible, and altogether unworthy



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thy of a wise and well-informed man; but nothing could be more reasonable, nor more characteristic of sound sense and superior judgement, than such an opinion was in the days of SOCRATES; in whose time astronomy, and almost every branch of science, were in a state so imperfect, and so corrupted by erroneous and extravagant systems, as to be absolutely useless to mankind. But it cannot be doubted, that he, and that every wise man, would have approved of the study of astronomy, and of other branches of philosophy, whenever they were properly cultivated and improved, so as to afford real and useful knowledge; on the same principle that he approved of that kind and degree of astronomical knowledge which watchmen and pilots possessed, and which might be useful, by enabling men to know the hours of the night, and to steer their course when at sea. In like manner, the *real* knowledge of every part of astronomy may be useful, either immediately or indirectly, in the measurement of time, and in the art of navigation. So may the *real* knowledge of the laws of human thought,

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the most important part of human nature, be useful, not only in scientific pursuits, (with a view to which alone I am here considering it), but on many other, perhaps much more important, occasions: for it is not science alone, but *Quicquid agunt homines*, that depends on the laws of human thought; and is, or ought to be, an object of attention to the Metaphysician, as ultimately proceeding from principles which it is his business to explore.

—But I must put an end to this long digression, and return to the consideration of the chief causes which have contributed to frustrate the labours of Metaphysicians, more than those of physical inquirers; and even to bring contempt and reproach on the lucubrations of the former, and on themselves.

The only other two of these causes which I think it necessary here to consider, are, the improper use of appeals to consciousness, especially in cases of keen controversy; and the employing of ambiguous words and phrases. The latter indeed has sometimes been pernicious even in physical inquiries;

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quiries; but chiefly, as I think, by marring or confounding those metaphysical principles which are always blended with our physical reasonings, and are indeed essential to them. The bad effects of the former have been necessarily confined to metaphysical inquiries. Both of them are very intimately connected with *discoveries* in metaphysics, and seem to be requisite for the making, and they plainly are indispensably necessary for the asserting and maintaining of such *discoveries*.

Consciousness is the knowing our own present thoughts; but, in the language commonly employed on these subjects, it is more usual to speak of consciousness as a *faculty*, by which we know our own thoughts. This expression, like many others of the same kind employed in speaking of the various modifications of thought, such as seeing, hearing, remembering, willing, chusing, &c. is in several respects improper, and naturally leads to much error and confusion in our reasonings; of which afterwards.

Metaphysical



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Metaphysical inquiries relate to human thought; and the very object of many of them is, to ascertain the most general, or, if possible, the ultimate facts, or indefeasible laws of it. The most obvious and natural way, if not the only way, for men to know accurately their own thoughts on any subject, seems to be by direct and very strict attention to them. We do not immediately perceive any other way by which men can know their own thoughts, either with respect to particular notions and opinions, or to more general laws: nor do we see any means of supplying defects, or correcting errors, or even of detecting falsehood, in the accounts which men may give of their own thoughts. Yet it must be evident, that such defects and errors may often occur, either from the imperfections of the faculties, or want of due attention, or strong attachment to some peculiar system or opinion, in those who undertake to attend to their own thoughts, and to give an account of them. Admitting even, what I really believe to be the case; that all ordinary men are by nature capable of attending directly to  
their

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their own thoughts, and consequently of knowing them distinctly, and giving a clear account of them; still there is reason to think, that this faculty, like every other that men enjoy, may be greatly improved by proper exercise, and much impaired by want of use; so that in the latter case the exercise of it shall become not only imperfect, and of course almost unavailing, but difficult and unpleasant to the person himself. The common duties, and business, and pleasures of life, not requiring any great or frequent exercise of that kind of attention, or reflection, as it is called, it will not probably, in the bulk of mankind, be found in greater perfection than just what is requisite for their ordinary occupations and amusements, and above all for their intercourse with one another.

It will probably be found in much greater perfection in those men who have exercised it most, by frequent and strict attention to their own thoughts, and by comparison of their own thoughts with those of others, in so far as these are made  
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known to them by speech or writing. Strange as it may appear, it is in this way possible that a few men, not naturally of superior faculties, shall be found well qualified to instruct the rest of mankind even with respect to their own thoughts. Though this must seem a paradox, it ought to be no more wonderful than many similar facts with which we are well acquainted; such as, the superior skill, and quicker discernment, and more accurate judgement, of musicians, with respect to sounds; of painters, with respect to the drawing and colouring of pictures; of various manufacturers, with respect to the texture, the polish, and other tangible qualities of bodies; of seafaring men, with respect to distant objects; of experienced physicians, with respect to the state of the pulse, and numberless little symptoms in sick persons; of hunters, especially those of savage nations, with respect to finding and tracing their game. In all these and many other instances, the superior knowledge which some individuals possess, and even the higher perfection of the faculty by which that knowledge



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ledge is acquired, depend partly, no doubt, on the greater frequency, but much more on the greater *attention*, with which it is exercised.

On the same principle, it may fairly be presumed, that those who have made the philosophy of human thought their chief and favourite study, should be greatly superior to the bulk of mankind, both in the knowledge of it, and in the faculty of reflection, by which that knowledge is acquired; and that they should uniformly and perfectly agree in the accounts which they give of it, or, in other words, in their system of metaphysics.

I have no doubt but that they would have been greatly superior to ordinary men in both respects; and that they would have uniformly agreed with one another, as physical inquirers have generally, and as Mathematicians have always done, if there had not been some circumstances in their situation, and perhaps in the very exercise of reflection, and in the nature of

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appeals to consciousness, which tended to confound their observations and frustrate their labours.

Some of the most important of these circumstances may easily be specified, and I think the knowledge of them may be of use, by shewing Metaphysicians how necessary it is either to avoid all appeals to consciousness, or if they must have recourse to them, to employ them very sparingly, and with peculiar caution.

In the first place, It must be observed, that as, for all the common and most important purposes in human life, there is little or no occasion for strict attention to our own thoughts, or deliberate reflection on them; so our attention is given naturally, and almost immediately, in all ordinary cases, to the things which are the objects of our thoughts, the knowledge of which things is of real importance to us; and not to our thoughts themselves, the accurate study of which, whatever knowledge it may afford us, is at best but of secondary use, and is hardly interesting

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ing to any but those whose object is the philosophy of the human mind. Accordingly very few, if any persons, except such philosophers, or Metaphysicians, as they are called, have attempted such reflection on their own thoughts, or have given any particular account of their thoughts, as known by direct consciousness. But most of these philosophers have begun and continued such attempts with some preconceived opinion, or system, or hypothesis, somewhat of the nature of a discovery in metaphysics, concerning that part of the philosophy of the human mind which they wished to investigate; and to such systems, whether originally invented by themselves, or only borrowed from their predecessors, most Metaphysicians have been much attached.

Now, whenever such an attachment to any system has taken place, but more especially when it is very violent and unreasonable, as it often hath been, the person under the influence of it is no longer perfectly *candid* in his observations and reflections; nor can he be altogether trust-



ed in the account which he gives of them. Without meaning to be disingenuous, perhaps with a strong desire to be accurate and impartial, he will naturally attend most to those circumstances which favour his system, and will overlook those which are adverse to it.

If his system become a subject of keen dispute, as has often happened to metaphysical systems, he will naturally take a part in the controversy; his passions will be roused, his understanding perhaps will be clouded; he will become less and less candid; victory in the argument, not the investigation of truth, will be his object; he will perhaps be as eager to deceive himself, as to confute his opponents; and may in a great measure succeed in both these respects, by a rash appeal to consciousness; and a bold assertion, that, on careful attention, and reflection on his own thoughts, he finds the result, on the point in dispute, conformable to his system. The temptation to this kind of disingenuity in such cases is strong, and the occasion is very favourable.

able. It does not immediately appear how it can ever be possible to convict a man of error, much less of falsehood, (for on questions of direct consciousness, error and falsehood are very closely connected), with respect to his own thoughts. If a person has made such a false step in metaphysical reasoning, and has *erroneously* professed to believe, as ascertained by his own reflection and consciousness, things implied in his system, which are not to be believed, and are not consistent with the reflections and consciousness of other men, his situation instantly becomes very embarrassing, and almost hopeless. That false step cannot be recalled; by it he has placed himself beyond the reach of argument or reason, and is pledged, not merely in point of understanding, but in point of veracity, to maintain his system, right or wrong, to the last; for an acknowledgement of his error would be at the same time a confession of his falsehood. His situation, in this respect, would be precisely the same with that of a physical inquirer, who, in order to support a favourite system in physics, should deliberately

rately and wilfully give a false account of the result of his experiments and observations.

This kind of dissingenuity has very seldom been practised in any branch of physics, except in Medicine; in which indeed it has long been abundantly common, and consequently is well understood. It seems now to be pretty generally considered as one of those peccadillos, which, like barbarous Latin, are *Medicis condonanda*; and is perhaps thought justifiable on the long established medical axiom, *Si populus vult decipi, decipiatur*. And, at any rate, great allowances are to be made for those who must live by the follies, and fears, and vices of mankind. But I much fear that some of my professional brethren have abused their privilege in this respect, to such a degree as to make it almost useless. The most candid, and patient, and experienced physicians, who are surely the best and only competent judges of such a question, have been obliged to confess, that great numbers of our medical facts and observations are as little to be relied on as our  
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medical theories; and less they cannot be. In a neighbouring country, the same remark has been so generally made, and is so well confirmed, as to be expressed in the form of a proverb, *Grand observateur, grand menteur*; which my late venerable colleague and preceptor in medicine, DR CULLEN, whose long and extensive experience had fully taught him the truth of it, used frequently to quote to his pupils with great acrimony. I much fear the French proverb will soon be translated, and naturalised in this island; and that in a few years a book of medical observations will be of as little value or authority, and as little to the credit of the author, as an equal number of medical advertisements and certificates selected from the London Newspapers.

When either physicians or metaphysicians were disposed to act disingenuously in the account which they gave of their own observations, they would be encouraged to do so by the evident difficulty, or in many cases the seeming impossibility, of detecting any falsity in the account which

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which they gave of their own thoughts and their own observations. Metaphysicians could scarce have any other motive but mere vanity for acting in such a manner: Physicians would have that and more; for not only empty praise, but much solid pudding, may be earned by assuming the character of a great discoverer, and observer, and improver in medicine. There is reason, however, to think, that some celebrated Metaphysicians have not withstood even the allurements of vanity.

It is certain, that philosophers, in the prosecution of their metaphysical researches and discoveries, have arrived at several very strange conclusions, which by some have been admitted and maintained as serious and important truths; and by others have been treated as mere paradoxes, and ingenious sophisms. Supposing them to be sophisms, it has been found in general very difficult to detect them. It cannot be doubted, that it would be very mortifying to the vanity of philosophers, or of those who wished to be thought such,  
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to be obliged to confess that they had met with sophisms which they could not detect; and still worse, to be obliged to confess, that their system involved, by necessary inferences, conclusions which were incredible and absurd. Yet one or other of these mortifications could be avoided, by those who were unable to detect the supposed sophism, only in one of two ways; either by giving up the system, or by admitting the conclusion that seemed to be implied in it.

It is reasonable to think that it would be very gratifying to the vanity of some philosophers, or of those who wished to be thought such, to be distinguished from the rest of mankind, by the knowledge of certain doctrines, or the profession of certain opinions, different from those which prevail among the vulgar. The wonderful arrogance and exultation, with which certain metaphysical opinions, equally strange and useless, have been maintained by some philosophers, appear to me fully to warrant this supposition.

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Now, *this* gratification could be obtained, and *that* mortification avoided, by the simple and easy expedient, of appealing to consciousness, and giving an account of the result more agreeable to system than to truth. That this expedient has on more occasions than one been successfully employed, I am well convinced.

It will easily be judged, that in these general observations I allude to the strange inferences deduced from the doctrine of Ideas, especially to those given to disprove the existence, first of body, and afterwards of mind; which inferences several persons have professed to believe. I own I regard those inferences as sophisms, and the professions of belief in them as instances of the abuse of appeals to consciousness. I should have thought it right for any persons to say, that those inferences were very puzzling, and that they could not discover any error in the reasoning that led to them. I believe indeed the error is not in the reasoning, but in the principle on which the reasoning  
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ing is founded. And it is nowise surprising that men should not set about rigorously examining, nor even calling in question, a favourite principle, which, though a mere hypothesis, they had long been accustomed to regard as a well-established fact. From that principle, I presume, no evidence can be drawn of the existence either of mind or body; and if those who maintained the principle had asserted no more than this, there would have been no reason to call in question their veracity in the account which they gave of their own thoughts, on making the appeal to consciousness and reflection. But when they asserted that they did not believe in the existence either of mind or body, there is reason to think they went a step too far. Mankind in general are sensible, that, if *they* were to give such an account of *their* conviction on the subject, it would be downright falsehood. They have ample experience of the general uniformity of the laws of human thought, and no evidence of there being any exceptions to them, or any possibility of setting them aside, either by voluntary efforts, or

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by reason and argument. They find the conversation and the actual conduct of those who profess such strange opinions nowise different from their own; and, seemingly at least, quite inconsistent with the strange belief which the Metaphysicians maintain: and they naturally consider these Metaphysicians as no more worthy of credit in their professions of belief, than they would do men who should maintain, that snow appeared to them black, and ink white; or who, in consideration of the acknowledged imperfection of human reason, should declare, that they doubted the truth of all the axioms of geometry, and the validity of every syllogism and of every kind of demonstration.

As belief and doubt are always involuntary, I do not think those persons can reasonably be blamed who doubt the veracity of men whose professions and actions have been such as I here allude to. But as this question is not connected with the subject of my inquiry; as I have nothing new to offer with respect to it; as I believe



believe the number of those who can be the objects of such unfavourable suspicions is very small, and by no means likely to increase; I think it unnecessary to consider the point more minutely. But there is another instance of the same kind of abuse of appeals to consciousness, for the support of very erroneous metaphysical systems, which I have had in view in these general observations, and which will require and deserve more particular attention: I mean the Doctrine of Necessity, as consisting in the persuasion, that the influence of Motives in producing the (supposed) voluntary Actions of mankind, is either precisely the same with that of physical causes in producing their several effects in lifeless bodies, or at least so nearly the same, (that is, making due allowance for the greater number and different nature of the steps interposed between the motive applied and the ultimate overt action performed in consequence of it), as to be absolute and irresistible in the one case as well as in the other; and completely to exclude the supposed exertion, and possession, nay even the possibility, of any liberty,

liberty, or self-governing power, in living persons, as well as in lifeless bodies.

This much agitated question, as being an important part of my own inquiry, I have had occasion to examine minutely and rigorously; and, with every possible precaution, and every assistance to strict reasoning that I could contrive; many of which I am sure had never been employed nor thought of before on this subject. By these means, I think, I have been enabled to ascertain some points relating to it with a degree and kind of evidence not formerly thought attainable on such a metaphysical question.

One of the most curious and interesting of these points which I have thus ascertained is, that the ready admission and arrogant assertion of the necessary consequences of the philosophical doctrine which appear the most repugnant to the general opinion, or what is called the common sense of mankind, are uniformly limited to those cases only in which the appeal with respect to the truth of them

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as matters of fact is to be made to consciousness.

The inferences from the doctrine in question, which I have had occasion to hear or think of, are of two kinds; the first kind comprehending all necessary inferences from it with respect to the conduct of mankind in certain given or supposable circumstances; the second kind comprehending the judgements or moral sentiments of mankind with respect to the merit or demerit of such actual or supposable conduct.

To the bulk of mankind the supposition that there can be moral merit or demerit without self-governing power in the person acting, appears palpably absurd; the latter notion being as much involved in the former, as those of time and space are in that of motion. But many Metaphysicians have got over this difficulty, by the easy expedient of appealing to consciousness; and have boldly declared, not only that self-governing power is not essential to merit or demerit, according to their notions,



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notions, but that it has nothing whatever to do with it. Some of them even, as I have found on actual trial, not only assert this general proposition, but admit it in particular instances, though of such a kind that I had selected them as ludicrous, as well as absurd; in full confidence that those to whom I stated them would never venture to admit them, and would of course give up the doctrine in which they were necessarily implied. But in this confidence I found myself wonderfully mistaken. As in all these cases the question of fact was to be decided by a direct appeal to consciousness; and as those with whom I had occasion to argue gave an account of their consciousness, and their sentiments, diametrically opposite to what I found to be true with respect to mine; and as I was sensible that I had no superiority over them, which could intitle my thoughts to greater regard, or my assertions to greater credit, than theirs in direct contradiction to mine; I thought it expedient to drop entirely the consideration of such cases, and to turn my attention towards those other cases

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cases which related merely to the actual conduct, or overt actions, of mankind.

The doctrine of Necessity seems to imply many necessary inferences with respect to the actual conduct of men, on the application of motives, strictly corresponding to the result in similar cases of the application of physical causes to lifeless bodies; but widely different from what might be, and probably would be, the result, on the supposition of liberty, or self-governing power, in the agents: As, for example, in the case of equal and opposite motives applied at the same time; in which case, according to the principle, and the analogy of the balance with equal weights in each scale, the person would necessarily remain inactive; but, according to the popular notion of self-governing power, might, and probably would, choose and act according to one of the motives, in preference or opposition to the other.

Such cases seemed, at first view, to afford a fair opportunity of bringing the

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controverted points to the fair test of open unequivocal experiment; to which indeed the assertors of the Doctrine of Necessity have often and very confidently appealed, or pretended to appeal: as, for example, DR PRIESTLY, in the following passage.

“ Moreover, we see evidently, not  
“ only that men are determined to act  
“ by certain motives, but that the *vigour*  
“ of their actions corresponds to what may  
“ be called the *intensity* of their motives.  
“ If a master be actuated simply by his  
“ anger, he will beat his servant more  
“ violently, and continue the correction  
“ longer, in proportion to the degree of  
“ his anger, or the apprehended cause of  
“ his displeasure; and kindness operates  
“ exactly in the same manner, a stronger  
“ affection prompting to greater and more  
“ kind offices than a weaker.

“ Also opposite motives, as causes of  
“ love and hatred, are known to balance  
“ one another, exactly like weights in op-  
“ posite scales. According to all appear-  
“ ance,



“ance, nothing can act more invariably,  
 “or mechanically. — Strengthen the  
 “motive, and the action is more vigo-  
 “rous; diminish it, and its vigour is a-  
 “bated; change the motive, and the ac-  
 “tion is changed; entirely withdraw it,  
 “and the action ceases; introduce an op-  
 “posite motive of equal weight, and all  
 “action is suspended, just as a limb is  
 “kept motionless by the equal action of  
 “antagonist muscles. As far as we can  
 “judge, *motives* and *actions* do in all  
 “possible cases strictly correspond to each  
 “other.”

Now, all this appears very distinct and  
 plausible, and seems to be a fair appeal to  
 many familiar and unequivocal observa-  
 tions and experiments; but in truth it is  
 altogether nugatory: Of all that are men-  
 tioned, or alluded to, not *one* observation  
 or experiment is unequivocal, or fair, or  
 conclusive; nor do I believe, that DR  
 PRIESTLY, or any other Metaphysician,  
 ever seriously intended to rest the decision  
 of the controversy on such experiments as  
 he has suggested; that is, to abide by the  
 result

result of them, whether favourable or adverse to their system. I know, that, in every instance in which the result corresponded with the system, the experiment would be reckoned valid, and held as conclusive evidence of the doctrine. But I know likewise, that whenever the result was adverse to the doctrine, the experiment would be set aside, or explained away, as inconclusive; and that, by a kind of philosophical legerdemain, we should instantly get an appeal to consciousness, instead of the proposed appeal to open unequivocal experiment.

Thus, for example, if in any case the action performed did not correspond to the motive known to be applied, which happens times innumerable every day, it would immediately be *supposed*, and asserted confidently, as a thing clear beyond the possibility of dispute, that some other motive had occurred which balanced or counteracted the one originally known to be applied. If, on the application of two precisely equal and opposite motives at once, for instance, the offer of a shilling,

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ling, or of a guinea, to a porter, on condition that he should go one way, and of an equal sum on condition that he should go another way, the two opposite motives should not balance each other, like equal weights in opposite scales, and the person should choose and act according to one of them, disregarding the other, which will almost universally happen, it will instantly be *supposed*, and asserted, that the person found or fancied some additional motive on one side, which was enough to turn the balance. If, on increasing the *intensity* of the motive, the *vigour* or *quantity* of the action should not be increased in proportion, nor even in any degree, which will almost universally happen whenever a person is offered, either from mistake, or whim, or generosity in his employer, or for the sake of the experiment, much more for doing any ordinary kind of work than the common and reasonable payment for it; as, for example, if a labourer were offered a guinea, or an hundred guineas, instead of a shilling, for one day's work, it would be *supposed*, that he had some other motive to counteract  
that



that one, and limit its effect. If, on diminishing the motive, the action was not diminished; if, on changing the motive, the action was not changed; if, on withdrawing altogether the motive, the action did not cease; the same kind of *suppositions*, varied according to circumstances, so as to suit each particular case, would instantly be made. To say that they were gratuitous and unphilosophical, and to deny them positively, would avail nothing; for the most positive denial of any thing is no more a proof of its falsity, than a confident assertion of it is of its truth. This can only be ascertained by an appeal to reflection and consciousness, which is little better than an appeal to the candour and veracity of men who are engaged in very keen, and perhaps very angry controversy. Yet to such fruitless appeals, instead of that proposed, of open and conclusive experiment, the decision of the question is brought by the easy expedient of arbitrary suppositions; which in reality amount to a systematic attempt to try the truth of a matter of fact by its consistency with a preconceived opinion or theory;

theory; instead of trying the truth of the theory, as reason requires we should do, by its consistency with matter of fact.

Fully aware of the futility of such a mode of reasoning, I have taken peculiar care, neither to make, nor to admit, nor to deny, any such suppositions; and never to make any appeal, directly or indirectly, to reflection or consciousness, with respect to the truth of any supposed matter of fact. Indeed I make no further appeal to the thoughts of mankind, on the subject in question, than is done in geometry; I mean, for the admission of axioms, or self-evident necessary truths, and for the validity of strictly logical inferences; leaving always the decision of every question of fact to open unequivocal experiment, that neither directly nor indirectly involves or admits of any appeal to consciousness.

Proceeding on this plan, I soon made a very curious discovery;—not in metaphysics, I own, but with respect to Metaphysicians. Wherever I pointed out to them  
necessary

necessary inferences from their own principle, which might at once be brought to the test of open unequivocal experiment, and admitted of no appeal to consciousness, they perceived intuitively, without having occasion to make any experiment, that those necessary inferences were false in point of fact; and they thought them ridiculous; which I, and many others who denied the principle of Necessity, had done before. Yet all my inferences were strictly analogous to the actual result, in similar cases, of the application of physical causes to lifeless bodies, as those who saw the falsity of them with respect to living persons well knew; and some of them were merely particular instances of certain general propositions, which those to whom I stated them, and indeed all Metaphysicians who hold the doctrine of Necessity, were accustomed not only to admit, but to assert in the strongest terms, as universally and necessarily true.

I hope some Metaphysician will find leisure to consider maturely this singular occurrence;



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occurrence; and will endeavour to account for it in a manner more creditable to himself and his brethren than I am able to do. But, in the mean time, I have no scruple to say of them and their conduct, what I am sure they would think of me and mine, if I were to act as they have done; that is, if I were to assert in the strongest terms, as my firm belief, a doctrine which mankind in general, and they in particular, thought absurd and incredible; and if I were to admit every necessary inference from it, however repugnant to the general sense of mankind, which was to be decided by an appeal to consciousness; and yet were uniformly and intuitively to perceive and acknowledge the falsity of every necessary inference from my own doctrine, which did not admit of such appeals, and might be brought to the test of open and conclusive experiment.

My firm persuasion on this point is, that those who have maintained the doctrine of Necessity have acted uncandidly, as well as unreasonably.

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Let it not be supposed, that, in hazard-  
ing this assertion, I fall into the disgrace-  
ful error, of calling in question the since-  
rity of any individual, or any set of men,  
for holding opinions different from mine,  
and different from those of mankind in  
general. No person can feel more strong-  
ly than I do, how illiberal, as well as un-  
reasonable, such conduct would be. I  
know well that there are many defects, and  
often great peculiarities, and sometimes  
wonderful disorders, in the faculties of  
different individuals; which will suffi-  
ciently account for their maintaining ve-  
ry extravagant opinions, without afford-  
ing the smallest ground to impeach their  
veracity.

It is on the clear and uniform observa-  
tion of *deliberate inconsistency* in a particular  
set of men, and on it alone, that my con-  
viction of their *mala fides* is founded.

I need not say that I am willing to be  
judged by the same test myself, whenever  
my veracity shall be called in question;  
for I know that I must be so, whether I  
will

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will or not; and that I should be exceedingly laughed at, if I attempted to remonstrate against it. I presume the case would be the same with my Lord High Chancellor, and with the Twelve Judges of England, if they were placed in the same circumstances; for no rank however exalted, no talents however acknowledged, no character however established, can exempt a man from the laws of human thought.

The most sacred, and uniform, and indefeasible of these laws, are the intuitive perception of self-evident necessary truth, and the irresistible conviction of necessary connection: these laws accordingly are the very basis of the most perfect science; the former constituting the essence of an axiom, the latter that of a syllogism. To dissent from either of these, would inevitably be regarded as a renunciation of Truth as well as Reason.

Even in numberless cases where axioms and syllogisms are out of the question, inconsistency in various respects may af-



ford ample proof of insincerity; and is every day admitted as complete evidence of it, both in the common conduct of life, and in the most serious discussions in courts of justice; in which there is often occasion to judge of the sincerity of men in their assertions.

Thus, for example, if a person whose eyes were open, and quite clear, and to all appearance perfect, should declare, that even in the best light he could see nothing, and that he was stone blind; however peculiar his case might be thought, and however unaccountable it would be to the bulk of mankind, there could be no good reason to call in question his veracity. If his conduct uniformly corresponded to his account of himself; if he was never observed to distinguish visible objects, nor to act as men do by the help of their sight; and was often observed to suffer the many inconveniencies and embarrassments which blind men feel; I conceive, that even the most uncandid and uncharitable, who might at first have suspected him of imposture, would soon be convinced that  
his

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his blindness was real; and that a magistrate who should take it into his head to consider him as an impostor, and punish him accordingly, would be unjust and cruel, as well as unreasonable. But let us suppose, that such a person, having no apparent defect in his organs of sight, but yet, declaring that he was blind, should go about, without difficulty or embarrassment, in places where he was an utter stranger, and read and write, and distinguish distant and visible objects, and, in short, act uniformly, on all occasions, like men who had the use of their eyes; I conceive, that even the most candid and charitable would inevitably regard him as an impostor; and that a magistrate would be justified in punishing him as such.

There have been several instances of a still more peculiar and limited defect of sight, which disqualified some individuals, and one whole family, for distinguishing certain colours; though in other respects their sight was good. I am myself acquainted with one gentleman who  
cannot

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cannot distinguish red from green; and with another who cannot well distinguish the different shades of blue, nor the colours bordering on blue, like indigo and violet; nor the colours in the composition of which blue has a share, like purple. This kind of peculiarity and defect of sight I conceive to be somewhat analogous to the peculiarity and defect of apprehension or understanding in those who profess that they cannot perceive any difference between the relation (or influence) of motive and that of physical cause. The sincerity of those who declare that they have such a peculiar defect of sight cannot, without great injustice, be called in question, while their actual conduct corresponds to their declarations. But if ever it is found that any of them did and do uniformly distinguish those colours which they said they could not distinguish, it will instantly be known, that, on the part of these persons at least, there was no defect of sight, but mere pretence and imposture.

On the same principle, it would be very wrong to call in question the *bona fides* of



a person who should declare, that he believed his legs to be made of straw, and his posteriors of glass; both which opinions have been entertained by some individuals; and, to the best of my judgement, are not more repugnant to good sense, and clear evidence of the plainest and most direct kind, nor do they require and imply in those who entertain them a mode of actual conduct more extravagant, or more different from that of ordinary men, than the doctrine of Necessity, *when fairly and strictly examined*. If a person holding these peculiar opinions were to write any reasonable number of volumes, to prove that such was the case, not with himself only, but with all mankind; and should get many disciples to adopt and to maintain this doctrine of Glass and Straw; wonderful as such a peculiarity of opinion must appear, there would be no evidence of *mala fides* in those who professed it, provided only that their actions corresponded to their professions. And if all of them were uniformly at great pains to preserve from harm those supposed frail parts of their constitutions, as I am well assured

assured some persons have been who held such opinions, we should be obliged to give them credit for their sincerity, though no doubt at the expence of their understanding. But if it were found, that all persons of this singular persuasion acted in all cases just like other men, never shewing in their conduct any marks of insanity, and walking, dancing, riding, leaping, when they had occasion to do so, without taking any peculiar care of the infirm parts of their bodies; it would be very difficult not to call in question their veracity. And if any person, peculiarly desirous either to set them right in their opinions with respect to those parts of human nature, or at least to find out in what respect they were wrong, should propose to try them, or to instruct them, in the way of experiment; and after convincing them, by many trials, or finding them convinced beforehand, that glass could not be cut with a razor, and that straw would not bleed when cut with one, should propose to them, one by one, to try the effect of a proper application of a razor to those parts of their bodies which they

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they asserted were made of straw and of glass; and if they should all with one accord take the alarm at the mention of such an experiment, and refuse either to submit to it themselves, or to abide by the result of it when tried on others; then I think it could no longer admit of doubt, that the opinion which they professed to believe was a mere pretence.

I here content myself with pointing out the fact, which I presume will not be disputed, that in such cases our conviction of *mala fides* in those whose conduct is so inconsistent with their professions, would be complete and irresistible. I leave the investigation of the principle on which this conviction depends to the curious, and to those who shall think it necessary. The application of it will be easily understood; and if, on a careful examination of my argument, it be not found strictly just, great indeed will be my condemnation.

Such are the conclusions, which, it may be observed, are not merely speculative,

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but usefully practical, to which I have been led by considering the improper use of appeals to consciousness in metaphysical researches.

The last circumstance to be mentioned, as tending peculiarly to frustrate such researches more than those of physical inquirers, is the use of improper, and chiefly of ambiguous, words and phrases.

This evil has been so long and generally observed, the greatness of it has been so often felt, and so many good remarks have been made on it by different authors, that it is not necessary to consider the subject at such length as otherwise the importance of it would have required: nor is it indeed easy to add any thing of much value to what many distinguished philosophers, from BACON to DR REID, inclusively, have delivered on this subject.

The observations of BACON are not only the most original, but the most comprehensive, and most important, that I have ever seen. Some of them, however,  
are

are obscure, by reason of the brevity, and perhaps even an affected sententiousness, with which they are expressed, and the want of sufficient illustration by proper instances: and it must be owned, that some of them are rendered almost disgusting, and have the appearance of whim and extravagance, by the metaphorical and almost allegorical manner in which he has chosen to express them; and his unlucky and unreasonable attachment to his quaint conceit of *Idols*, which, as he says, beset, and occupy, and pervert the understanding, in many different ways. Possibly this is the reason why his observations on this subject have not met with that general regard which they deserved, and which many of his precepts on other points have met with, from those who have been the most ardent and successful in the pursuits of science. No person who would take the trouble to study the profound sense of BACON's observations on this subject, (the *Idola Fori*, in his allegorical language), could ever doubt of the truth or the importance of them: but there is reason to think, that many philosophers, and especially

Metaphysicians, have not taken the trouble to consider them with due attention. This may be inferred from the well-known and too familiar facts, that to this day the use of very improper and ambiguous terms, and those fruitless endless disputes which inevitably result from them, still prevail in several branches of science, and most remarkably in the science of mind; though BACON has not only shewn the nature, and origin, and the consequences, of such abuses, but sufficiently explained the means, and I believe the only possible means, by which they are to be rectified.

*Sunt etiam IDOLA tanquam ex contractu et societate humani generis ad invicem, quæ IDOLA FORI, propter hominum commercium et consortium, appellamus. Homines enim per sermones sociantur; at verba ex captu vulgi imponuntur. Itaque mala et inepta verborum impositio miris modis intellectum obsidet. Neque definitiones aut explicationes, quibus homines docti se munire et vindicare in nonnullis consueverunt, rem ullo modo restituunt: sed verba plane vim faciunt intellectui, et omnia*



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*omnia turbant; et homines ad inanes et innumeras controversias, et commenta deducunt.*

• IDOLA quæ per verba intellectui imponuntur, duorum generum sunt: aut enim sunt rerum nomina quæ non sunt; (quemadmodum enim sunt res quæ nomine carent, per inobservationem; ita sunt et nomina, quæ carent rebus, per suppositionem phantasticam); aut sunt nomina rerum quæ sunt, sed confusa, et male terminata, et temere, et inæqualiter, a rebus abstracta.

Nov. ORG. lib. I. 43. 60.

• BACON too points out very well the folly of attempting to rectify such evils merely by arbitrary or any definitions or explanations, for this plain reason, that these must themselves consist of words; and words, as he remarks, beget words: in truth, they seem to be very prolific. He likewise recommends the only feasible expedient to get the better of them; which is, to have recourse constantly to the particular instances of the things themselves about which we mean to reason, and to  
examine

examine carefully and patiently all their relations and connections, their differences as well as their resemblances.

Words are merely the arbitrary signs or symbols of thoughts; *Notionum tesserae*, as he very aptly calls them. Without the use of some kind of tokens of thought, we could not know enough of one another's thoughts on many subjects, for almost any useful purpose; thoughts themselves not being the objects of any of our senses. The words, or other signs, employed to express our notions of external objects, will be sufficiently explained by the uniform use and application of them, or occasionally by reference to the things themselves which we wish to denote. From the general uniformity of the human faculties, the notions of all men (except in a few very rare instances) will be the same with respect to such external objects as they have occasion to examine; and the general words denoting them will be well and uniformly understood; just as proper names are by those who know intimately the persons and things to which they are given. It  
can

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can very seldom happen, that a word denoting any external object shall be obscure or ambiguous; and if ever this should be the case, the evil must be of short continuance, and can have no bad effects; for it may be removed in a moment, by reference to the object itself; and certainly will be so, whenever any mistake, or doubt, or embarrassment occurs, in consequence of such ambiguity.

But this cannot be done so easily, nor in the same manner, with respect to things intellectual. The imposition of names to these, is, if possible, more necessary for discourse about them, than the nomenclature of external objects is to enable us to speak intelligibly about them. It seems to have been thought equally easy, and has been generally attempted with little care, and no peculiar attention; which indeed could not be expected in the first rude contrivers of every language. Yet there could be no exhibition of the thing meant, nor any precise and pointed reference to it, to settle the meaning of the word denoting it, either originally at  
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its first imposition, or subsequently, on some mistakes or embarrassments occurring from the use of a word, that was not fully nor uniformly understood by those who used it, or by those to whom it was addressed. It might very naturally remain in use, and acquire authority, even with all its imperfections on its head, and soon come to be a part of language too firmly established to be altered by those who alone could know the impropriety of it, but who perhaps might not know how to rectify it effectually, and whose numbers, at any rate, would be too small, and probably whose pursuits would be too much disregarded by the bulk of mankind, to procure for them either attention to their remonstrances, or influence enough to effect such a reformation as they might reasonably propose.

This I take to be the real history of the introduction, and the general use, and the inveterate establishment, of many ambiguous and otherwise improper expressions, especially with respect to things intellectual; which kind of expressions is not peculiar

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culiar to a few languages, but is found almost universally in all, and may justly be reckoned one of the principal causes of the greater obscurity, and difficulty, and slower progress, of metaphysical than of physical science.

Of all the imperfections that any word or phrase in actual use can have, the most common and natural, and beyond all doubt the worst with a view to strict reasoning, is ambiguity; that is, the confounding of different thoughts. By it the very purpose of artificial language, as distinguished from natural, namely, the communicating of thought precisely and distinctly, is frustrated most effectually; and what aggravates very much the evil is, that those concerned do not always find it out. They think they understand one another, when in truth they do not. Nay, though it has rather too much the appearance of a paradox, yet I believe it may be said with great truth, that some philosophers have not always understood themselves in some of their most elaborate speculations, which they endeavoured to carry

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ry on by the use of ambiguous expressions. For most men even think, in a great measure, by the help of words, on many occasions; especially on subjects of scientific research, in which a long train of discourse or reasoning is requisite: and if the language they employed were perfect, or nearly so, and absolutely precise and free from ambiguity, like the algebraical notation employed by Mathematicians, they would find great advantages from the use of words; which in this case would not only serve to distinguish their thoughts, but also to arrest and detain them, and thereby give to philosophers a more perfect command of them than otherwise they could have. Thoughts are of their own nature fleeting; seldom to be recalled, just at the time when we want them, without some effort, and difficulty, and delay; and often not to be recalled, by any effort that we can make, at least in proper time to serve the purpose required. But if they were fairly and distinctly represented, by precise words or symbols, these might be employed as freely and confidently, I mean, with as little danger



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danger of mistake, as the Indian cyphers are by an accountant in common arithmetical calculation; or as bank-bills are by merchants in their transactions with one another; for every cypher, and every bank-bill, so employed, represents, without the smallest possible ambiguity, the very things, or notions of things, which it is intended they should represent; that is, produces invariably in all concerned just that thought, *tantum et tale*, or that combination of thoughts, which there was occasion to produce in them.

Hence it is that ambiguity may justly be reckoned worse than any degree of mere obscurity in the expression of thought; it is worse even than not being at all understood. A confusion of tongues as complete as that of Babel, nay, even the total loss of speech, though they would prevent the communication of thought by words, would not prevent the distinct exercise of thought in each individual separately; nor would they hinder a person from prosecuting a long train of thought, and perhaps

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shewing clearly by his conduct, that he had done so to very good purpose.

But let us consider what would be the result, if a person should attempt to tell any very simple story, in which but half a dozen persons were concerned, employing only one or two proper names to denote all the different persons who were to be mentioned. Any one who does not clearly perceive what the result *must* be, may try the experiment, and will soon convince himself that the attempt is hopeless. I do not think it going too far to say, that the talents of *Demosthenes*, and *Cicero*, and *Herodotus*, and *Tacitus*, united, could not enable a person who should proceed on such a plan to tell any story in such a manner that others could rightly and uniformly understand him. I will even venture to give it as my opinion, that he could not well understand himself in telling or reading his own composition, however well he might have known the story before he expressed it in such preposterous terms, and however distinctly he might remember it afterwards. I  
conceive

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conceive that the use of such ambiguous proper names, as I have supposed, would, during the time they were employed, confound his own understanding, as well as that of every person to whom his discourse was addressed.

Next, let us consider the case of Mathematicians, whose reasonings have always, and most justly, been regarded as perfect and exemplary in point of clearness and accuracy. Nothing is more essential to this than the absolute precision of all the terms which they employ. What would become of the best of them, and of their demonstrations, if they were obliged to employ only one or two words, to denote all the various relations of equal, greater, and less, perpendicular, oblique, and parallel; or if they had but one or two words, to express a circle, an ellipse, and a parabola, a sphere and a cube, a cone and a cylinder? What would become of the best Algebraists, and of their calculations, if they were obliged to use only one or two *signs*, to denote addition, subtraction, multiplication, division, the square and  
the



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the cube, the square root and the cube root, and only one or two *letters*, to denote many different quantities? — It must be evident, I think, that the lucubrations of Mathematicians, proceeding on such a plan, would be at least as obscure, and confused, and unsatisfactory, and erroneous, and useless, and as disgusting to every man of good sense, and zeal and taste for science, as any speculations that ever were advanced in metaphysics.

Let us suppose, that bank-bills were so ambiguously worded, that many of them might be understood individually to denote different sums of money, either at the same time, or occasionally at different times, and in the hands of different persons: Would it be *possible* for merchants, or for any men of sense, *ever* to agree about the payment of an account in such bank-bills?

Lastly, Let us suppose, that, in common arithmetic, we were to use one or two of the Indian cyphers, to express two or three different numbers each; what would become

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become of arithmetical calculation, which at present is so distinct and satisfactory, and so easy and familiar to us all? None of us, I apprehend, would be able to sum up a single page of an account; and I presume the best accountants in the world would be as long and as completely puzzled with a simple question in the rule of Three, as Metaphysicians, from PLATO and ARISTOTLE down to MR HUME and DR PRIESTLY, have been with the doctrine of Causes; and, after all, would probably go as far wrong in their conclusions; if they should ever think of bringing their work to a conclusion. But it would depend entirely on themselves to do this, or to continue their researches for ever. For it is the peculiar prerogative of reasonings by means of ambiguous terms, that they may, with equal pleasure and advantage, be continued *ad infinitum*; always doing, never done: in this respect, they are vastly superior to mathematical, and even to physical discussions, which in general may soon be brought to a decision.

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All these suppositions are imaginary; and they are of the nature of extreme cases: but, to the best of my judgement, the evil necessarily resulting from the supposition made in each case is nowise exaggerated; and all the cases stated are strictly parallel to the real cases which I have in view, and am to examine.

In considering many parts of the philosophy both of mind and of body, a great number of different notions, and things which are the objects of such notions, must be examined and compared, in order to ascertain wherein they agree, and wherein they differ, and what are their various relations to one another. This is very particularly the case with respect to that part of philosophy which I wish to investigate, namely, the doctrine of Causes, and the nature and various kinds of Causes, to which *Events*, by whatever name they may be called, whether Changes, Effects, Actions, or Phænomena, must be referred. In this inquiry, the notions of Existence, Substance, Quality, State, Event, Change, Effect, Action, Cause, Agency,



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gency, Power, Influence, Necessity, Force, Mind, Body, Faculty, Motive, and many others, are to be examined, and compared, both with one another, and with the things which are the objects of them. By comparing them with one another, we may learn wherein they agree or differ; by comparing them with their proper objects, or with the instances to which we conceive that they correspond, and from which, however carelessly or imperfectly observed by us, we have reason to think that they are principally derived, we may know how far they agree with such instances, or, in other words, how far they are just. It is obvious, that these two sorts of comparisons must be very intimately connected; and that they must be mutually subservient to each other: and it is not obvious, nor for my own part do I believe, that there can be more than one way of conducting with success such comparisons, and such an examination, as is proposed.

For this purpose, one of the first and most essential requisites would be, that we should, in all our thoughts and reasonings,

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sonings, carefully distinguish all those different notions; for that all or many of them are somehow to be distinguished, cannot reasonably be disputed. The second requisite would be, that we should, in our discourse, as uniformly and perfectly denote them by different expressions, as Mathematicians always do all the different notions which enter into their reasonings; as, for example, equal, greater, less, perpendicular, oblique, parallel, addition, subtraction, division.

The former of these two requisites I consider as absolutely indispensable, and as attainable with due care and pains; the latter of them, if it be physically or morally possible, is, I fear, only practicable with such extreme difficulty, and so slowly, that it may almost be regarded as unattainable; especially in the beginning of such an undertaking. It would require a great innovation in common language; particularly with respect to the limiting strictly the meaning of many familiar words and phrases; which is always more difficult (by reason of the  
deeply

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deeply rivetted principles of habit and association) than to abolish old or to introduce new expressions. Such an innovation no individual whatever could reasonably hope to effect: indeed very few people could expect to be listened to, even by philosophers, if they were to propose such an innovation, though only in the language of science. But this, in the course of ages, might be accomplished by the united and successive labours of philosophers; and I have no doubt but it would be so, if it were really found necessary. I can see no moral nor physical impossibility in having a language for these parts of physical and metaphysical science, as perfect as algebraical notation, and, if requisite, as different from the common language of mankind.

But such an object, however desirable, that could not, on the most favourable supposition, be accomplished in less than many years, or perhaps not in a century, must be quite out of the question in a first attempt. And however agreeable or useful it would have been to have had such



a language, as a perfect instrument in the work proposed, yet I trust it is not indispensable; and that the work may be carried on without it; though no doubt with greater labour, and of course more slowly.

There seems no reason to doubt, that men not having any use of language, but all the other ordinary faculties of human nature, as well as men who had the use of a perfect language, suited to the objects of their investigation, might attend to the particular instances of the things that were to be considered and compared, and might judge of them clearly and well, so as to know as much of their nature, of their resemblances, of their differences, and of all their other relations, as ever can be known by mankind. So, for aught that I can perceive, may men do, who have the use of speech, but whose language, with respect to such subjects, is imperfect and ambiguous.

The chief difference that I can perceive as necessarily resulting from the three different

ferent supposed situations in point of language, is, that the person having the use of an unambiguous and perfect language could communicate his thoughts to others precisely, and easily, and rapidly; that the person having no use of language could scarce communicate his thoughts at all, and at best very slowly and imperfectly, by his actions and his signs; and that the person having the use of only common and ambiguous language, would not only express his thoughts imperfectly, and with difficulty, if he trusted to words alone, but often at the most imminent risk, amounting in some cases to almost a certainty, of being mistaken or ill understood by those to whom his discourse was addressed, perhaps even of misunderstanding and perplexing himself.

I conceive, too, that, *cæteris paribus*, the person who had the use of the perfect language, like that of Algebra, would have great advantages in conducting his own reasonings, even by himself, independently of any view to the communication of them to others; and that he would get on  
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in his progress towards general inferences and conclusions, that is, towards philosophical knowledge, much quicker than any person could do who had not the use of such an instrument to assist the operations of thought.

But, the natural faculties, by which the knowledge of the particular things to be compared and judged of is acquired, being supposed uniform, or nearly so, in all men, I conceive, that those who had no language, those who had an imperfect and ambiguous one, and those who had the most perfect language, would agree perfectly, in point of thought, as to the objects of their inquiry, whenever they attended to the particular instances of them. And on this principle I conceive, that, by the constant, or even the occasional, reference to such particular instances of what is meant by any of the ambiguous words or phrases in every case in which they are employed, men may be made to understand one another perfectly, and, what is of at least equal moment, may understand themselves, in their reasonings



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ings on these subjects, even though they still continue to use the common ambiguous language of mankind, which it is impossible, at least at first, to reform and render precise. This, I presume, is just what BACON had in view, when he warns us of the insufficiency, and even of the pernicious effects, of definitions and explanations of terms, and directs us *ad instantias particulares recurrere, earumque series et ordines*: And it is precisely what I have endeavoured to do in all my investigations.

But it is necessary, in the first place, to shew, that the words commonly used to express the notions that enter into our reasonings on the subjects in question, are really ambiguous; *ut homines* (to use BACON's words) *præmoniti, adversus ea se, quantum fieri potest, muniant*; and, in particular, that, being duly aware of the ambiguity of the words unavoidably to be employed, they may, in all their thoughts and reasonings, attend *solely* to the import of the particular instances suggested in illustration of the words, and not to the  
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various and ambiguous import of the words themselves, considered apart from the instances employed in the different cases to explain them. This mode of proceeding is indeed unpleasant and tedious; but it is practicable: it is not near so difficult as to be obliged to learn and rigorously employ a new philosophical language: as, for example, any one of the several new languages lately introduced, or at least proposed, and really found necessary in chemistry. In this science many new notions have lately been introduced, many old abolished, and many disjoined which were formerly associated most intimately, and expressed by vague and otherwise inadequate terms. A new chemical language, therefore, was indispensably necessary: yet still I believe many good chemists find much difficulty in using any of those that have been recommended, and even in understanding them when used by others.

The expedient which I employ is little if at all worse than being obliged to read history and mathematics, with constant reference

ference to maps and diagrams; without the aid of which, very few people would be able to comprehend rightly, and understand clearly and fully, what they read: It is not, in my opinion, near so unpleasant, as to be obliged to study an elegant author, in a language which we understand but imperfectly, with the help of a translation, (like those *ad usum Delphini*), or of notes *variorum*, or, worst of all, of a dictionary; all which helps many good scholars have occasionally been glad to employ, before they were sufficiently acquainted with the style of an author, or with the language in which he wrote, or with the manners and customs of ancient and foreign nations, or with the different scenes and events, to which he alluded, to be able fully to understand at once what they read.

As to that mode of proceeding being slow, and perhaps tedious, which it no doubt must be to a certain degree, I reckon it no disadvantage, but, on the contrary, a real and very great advantage, in such an investigation as mine; the object  
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of which is, not amusement or pleasure, but instruction. Few or none will ever engage in it but those who wish to be instructed, or, to speak more accurately, who wish to instruct themselves; and these surely cannot think any expedient too slow, which is evidently necessary, nor any one tedious which is really useful, for the purpose which they have in view. Besides, it is a very great imperfection in the understanding of many persons, that in them the train of thought is naturally and generally too rapid, and perhaps likewise too copious and complicated, in respect even of the combination of simultaneous conceptions, to allow them time to examine steadily and accurately each particular thought as it occurs; that is, to attend strictly to each of them, as it comes, either in succession, or in combination with others, and to compare them with one another, so as to perceive clearly their resemblances, their differences, and their other relations.

That there are great differences in different individuals, and even in the same individual

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individual at different times, with respect to the natural rapidity of the train of thought, is certain; and it may be well illustrated, and indeed *proved*, by the familiar observation, that some people speak so quick, and others so slow, that ordinary men, accustomed to the common rate of speaking, find it disagreeable, nay difficult, to listen to them, or to converse with them.

Those who speak too slow are in general only tedious, and sometimes dull; but few or none of them are absolutely unintelligible. This, however, would almost certainly be the case with one who should let his words drop from him at long intervals, like minute guns, or the very slow tolling of a bell. A succession of any words, uttered so slowly, would no more be connected and rational discourse, than the equally slow succession of any simple tones would be melody or music, or than the very slow and successive inspection of every minute part of a great picture separately would be a view of the whole of it, sufficient to give a person a just notion of a

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great landscape, or of the whole groupe of figures in an historical picture. This plainly depends on the fleeting nature of every kind of thought, and admits of many curious and useful applications, which it is needless here to consider.

Those who speak too fast, even though they articulate perfectly, are often but very imperfectly understood; and sometimes become almost unintelligible to ordinary persons, whose thoughts come to them so much more slowly than the torrent of words which is poured upon them by too fluent speakers, that they cannot overtake them. They cannot contrive, by any effort of attention, to have, in proper time, and succession, and combination, the various thoughts which the quick speakers wish to produce in them. This happens every day, even in too quick reading, tho' with distinct articulation; and though the sentences read be the composition of a good author, whose meaning was just; and though every word and phrase be well chosen, and well arranged, so as to express fully and clearly the meaning intended,



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tended, if due time had been allowed the hearers to apprehend it. But in very quick *extempore* speaking, it is reasonable to suppose, that a person may often not fully understand himself: certain it is, that many persons, when they speak very quick, not only speak injudiciously, but in such a manner, that their words, accurately remembered, and carefully and coolly examined afterwards, cannot be understood, either by themselves or by others; not even with all the help that rules of logic and of grammar afford.

\* Sometimes the words, sometimes even the actions of men, are such as indicate, not merely imperfection, and obscurity, and confusion, but absolute incongruity, of thought; to such a degree even as to be ludicrous.—*Bulls*, I think, some of which are only verbal, but others truly practical blunders, come under this description. They sometimes proceed from a person's attention being so thoroughly ingrossed by one object, that he can think of nothing else; nor, consequently, perceive even the simplest and most obvious relations

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relations of that object to others: but more frequently, I apprehend, they proceed from the very opposite circumstances; too little attention, too quick thought, and an imperfect and confused apprehension of many things together; which, without more time, and stricter attention, can neither be properly distinguished, nor rightly comprehended, in point of thought; nor, consequently, can they be expressed in words with sufficient clearness and precision.

If it be true, as from its being very generally asserted and believed I presume it is in some measure, that the Irish nation excels in this kind of composition, for to my certain knowledge it has not acquired an absolute monopoly of the commodity, I conceive that it is to be explained and accounted for on the simple principle which I am here considering.

To attribute it to any natural defect in the intellectual powers of a great people, would, in the first place, be illiberal in the highest degree; and, in the second place,

place, would be absurd. But I think it may reasonably be attributed to that peculiar rapidity of thought, and that eagerness and impetuosity of character and conduct, which I presume the Irish themselves will acknowledge to be justly their national character.

Such a peculiarity, whatever may have been its origin, whether moral and political circumstances in distant ages, affecting whole tribes of men, or the accidental, but natural singularity of character, of one individual, or of one family, of great influence and extensive connections, may have become general and permanent, in consequence of the powerful influence of instinctive involuntary imitation in early life, and of long habit in more advanced years; which are two of the strongest and most general principles in human nature. It may therefore be considered as an instance strictly analogous to all other peculiarities of manner, and in some measure even of character, which are often characteristic, not only of individuals and of families, but of whole nations; as, for example,



example, sedateness or levity, taciturnity or loquacity, slow or quick speaking, provincial and national accents; all of which are in a great measure acquired, and often firmly rivetted, by the tendency to involuntary imitation, and the force of established habit.

The *Bull*, in whatever nation or language it may occur, I consider as the extreme case, or *ne plus ultra*, of inaccurate and imperfect thinking; on which very account it affords the best illustration of the nature and causes of such inaccuracies and imperfections of thought, and of the means of correcting them.

If the train of thought were made so slow in any person, that there should be time to attend to every object, and every circumstance of relation involved in any common and complex operation of thought, (for most common operations of thought are complex); and if, by any expedient whatever, the person were made to attend duly to every one of them, either in simultaneous combination, or in  
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very quick succession, according to the circumstances of different cases, I think it would be as impossible for him to make a *Bull*, as to deny an axiom of geometry, or the conclusion of a good syllogism.

We hear and read of many wonderful *Bulls* of the truly practical kind, altogether independent of language, and plainly founded in thought alone; such as, sending express for a physician to come without delay to a patient who was in the utmost danger, and telling the Doctor, in a postscript of the letter addressed and actually sent to him, not to come, as the patient was already almost well again; or observing gravely, when this story was told, that it was right to add such a postscript, as it saved the sending another express to countermand the Doctor; or inclosing a thin sixpence in a snuff-box, that it might not be again to seek when it was wanted to open the box, the lid of which was stiff; or realising HOGARTH's ingenious emblem, in one of his election-prints, by cutting away close to the tree the bough on which the person who cut it sat himself;

self; which I once saw successfully performed; and, for the honour of my own country, I must say that it was in Scotland, and by a Scotchman, who narrowly escaped breaking his neck by so doing; or what may fairly be reckoned the *maximum* of *Bulls*, and *instar omnium*, a gentleman, when his old nurse came begging to him, harshly refusing her any relief, and driving her away from his door with reproaches, as having been his greatest enemy, telling her that he was assured he had been a fine healthy child till she got him to nurse, when she had changed him for a puny sickly child of her own. If I am rightly informed, France has the honour of having produced this immense and unparalleled *Bull*; which is indeed *perfectum expletumque omnibus suis numeris et partibus*, and perfect of its kind.

At first view, it might be thought that men who could fall into such absurdities in their speech or conduct had not the ordinary faculties of mankind; but this would be a great mistake. There was probably no natural defect in their intellectual



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lectual powers; nor any imperfection in their mode of using them, either habitually or on the occasions specified, but what it was in their own power to correct almost in an instant. No laborious effort, or what could be called patient thinking, would be requisite for that purpose; nor any thing more than an easy degree of attention to those circumstances which should have been considered. This simple expedient would instantly enable them to perceive, nay, would make it impossible for them not to perceive, not only the impropriety of their words and actions, but the incongruity and absurdity of their first hasty thoughts, as clearly as Mathematicians perceive that a part is less than the whole. Surely a man who could not by such means be made in half a minute to perceive the *Bull* he made, would be as much a monster, and as great a curiosity, as one who could not see that the whole is greater than its part.

I What is intuitively, as well as experimentally, certain with respect to the greatest possible imperfections in the exercise of  
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thought, in persons not insane, nor deficient in the ordinary faculties of mankind, and to the easy and almost infallible means of correcting such imperfections, may fairly be applied, *a fortiori*, to the slighter and more common imperfections of the same kind; which amount only to vague, weak, inconclusive reasoning, and too hasty and imprudent conduct. I believe they differ more in degree than in kind, and accordingly appear sometimes to pass into one another, by insensible gradations.

It was the actually observing some such gradations in the course of my own inquiries, that suggested to me the preceding remarks and illustrations; particularly meeting with one instance, in which a Metaphysician, reasoning by means of vague terms, and general principles, and abstract propositions, which I reckon very preposterous instruments in some reasonings, and disdaining to employ the tedious aid of particular instances, which I find absolutely necessary helps in my researches, passed through all the gradations  
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of incongruity so rapidly, as to bring them all into view at once; thereby plainly shewing how nearly they are allied.

As this case is very instructive, I mention it particularly. The person in whose argument it occurred is a man of superior talents, and great erudition, and extensive general knowledge, peculiarly well versed in metaphysical researches, and capable of, and much used to, close and accurate reasoning on a subject in which the principles are clear and well established, and the terms perfectly adequate to express all the requisite notions without obscurity or ambiguity. Knowing that he held opinions on some points of philosophy that I had been studying diametrically opposite to mine, which I thought I was able to establish by new and decisive proof, I allowed him (as I have done many others of the same way of thinking with him) to examine, at their leisure, and repeatedly, all my arguments and illustrations on the points in dispute.



I never could perceive, that he or that any other person conceived differently from what I did with respect to any one of the many particular instances that I employed, as illustrations of my meaning, and a kind of specimens of the things which I wished to compare : nor could I find that he ever suspected me of misrepresenting, or even misarranging any of those instances or specimens; or that he ever expected, in any case proposed to him, the result to be different from what I had stated it. But he retained his former opinion.

In considering how this might come to pass, I soon observed, that in his own discourse and reasonings, and I have no doubt that somehow, even in his thoughts, he employed the vague ambiguous terms which I had reprobated; that he would not make use of the instances suggested by me, nor attend to them as the subject of discussion and comparison; but seemed to be tired and disgusted with them at least, if not provoked at the use which I made of them; and always recurred to the general, and what I thought the ambiguous,

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guous, expressions commonly employed by Metaphysicians. The consequence necessarily was, that I *could* not understand him, and that he *would* not agree with me.

I had repeatedly declared to all those to whose revision I submitted my argument, as knowing that they were adverse to my conclusions, that if they would favour me with their objections in writing, I should consider them with the strictest attention; and that if I found any of them valid, or even so puzzling, or of such a nature, that I could not easily answer them, so as to convert them into a sort of illustration of my own reasoning, I should give up my argument as absurd, and cheerfully acknowledge my obligations to the person who set me right, and his superiority in reasoning; and should commit my lucubrations to the flames, as not only useless in science, but disgraceful to myself.

As the best test I could give them of my *bona fides* in this offer, I engaged to publish,

publish, along with my Essay, any objections to which they would set their names, and which they would allow me to publish; and as the corresponding test of their sincerity and confidence in their own systems and reasonings, I entreated them not to give me any objections but such as they could openly avow, and allow me to make that use of.

In consequence of this offer on my part, many objections and answers to my Essay, were proposed to me; some of them of a very wonderful kind indeed, and abundantly puzzling, or, as I think, irrefragable, if I had had no better instruments for the purpose than the ambiguous words and vague principles that long have been, and still continue in general use among Metaphysicians. But on my explaining to the ingenious authors of them, what kind of arguments, and more particularly what kind of illustrations and instances, *earumque series et ordines*, I should state in reply to their objections, which I could by no means think valid; though none of them retracted their objections, or owned that they were erroneous and



and unreasonable; yet I found that none of them chose to avow his objections openly, by allowing me to publish them with his name subjoined to them; and none but one of them would allow me to publish his argument even without his name; for this offer I made to them all at last, as I was truly desirous to have the advantage of some of the many admirable illustrations which their objections afforded.

From this conduct, which, with only one exception, was uniform on their part, I could not help inferring, that whatever dislike and distrust they might feel of my speculations, and whatever confidence they might have in their own systems, they had but little confidence in the objections they offered against my reasonings.

That one exception, however, produced the strong illustration in question. The Metaphysician who had favoured me with so many unavailing remarks on my argument, both *viva voce* and in writing,

in different stages of its progress, got one perusal more of it when it was printed off; and, after considering it maturely, at least after having it in his possession for several months, returned it to me, with his final judgement and remarks on it, and gave me leave to publish them, if I chose to do so. This he did, knowing perfectly what reasons I had to regard my argument as valid and conclusive, both in point of mathematical reasoning and physical observation, experiment, and induction; knowing also, that my reasonings and inferences were given as a test of the *bona fides*, as well as of the soundness of the philosophy, of those whose doctrine he maintained; on which last point he had very freely and kindly expressed to me his opinion.

I found these last objections of the same kind with those I had got from him before; that is, depending on vague general principles, and ambiguous terms, with very little or no attention to particular instances, and to the distinctions which they enable us, and force us to observe; and which  
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the use of general ambiguous expressions enables us and forces us to confound. I even thought these last objections in some respects less intelligible, if possible, than any I had got from him before.

The first paragraph of his final remarks, though the expression of it was vague, especially with respect to the unexplained and unlimited application of the term *Cause*, I was enabled, by many different circumstances, and much experience, to understand sufficiently to perceive with certainty, that it was no objection, and that it scarce bore any relation to any thing that I had advanced. But of the second paragraph I could not understand even one sentence, though it contained many things that, from their grammatical structure, looked very like propositions, and were expressed in five or six sentences ; all of which seemed to relate to a subject that had long been familiar to my thoughts, and seemed to be intended as objections, or as a prelude to objections, to my own observations and reasonings. Most other parts of the objections given



me to publish appeared to me to have either the same or still greater imperfections, and to be altogether unfit for publication, as being not in the least likely either to promote the interests of science, or to do much credit to their ingenious and very metaphysical author.

Convinced of this, and sensible of the peculiar difficulty and delicacy of my own situation, I tried once more to call the author's attention to them, and to the particular instances on which my reasonings depended, and to which alone all objections to them, and indeed all reasonings on these subjects, ought to relate. I hoped he would be prevailed on to reason on my principles, or rather on BACON's, whose plan I had adopted; and I trusted, that, if he did so, whether he altered his opinion with respect to my argument, and the general point at issue, or not, he would see the expediency of either withdrawing his objections as invalid, or at least not allowing me to publish them; as several persons, not his inferiors either in talents or knowledge, and of the same  
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persuasion with him in metaphysics, had, on mature consideration, after the same kind of warning, done with respect to theirs.

In this expectation I was baffled as before; and, I believe, by the same means.

I made one effort more to effect the same purpose. I intreated him, and, as it appears, prevailed on him, to submit his objections to the revision of two persons whom I named to him; two of the ablest men, and best scholars, and best Mathematicians, and of the most extensive acquaintance with various branches of science, that I had ever known; both of them were his own intimate friends; both of them were thoroughly acquainted with my lucubrations, and my mode of reasoning, by reading my Essay, as well as by frequent conversations with me about it: both of them were familiar with the instances and illustrations, and other means, that I employed to correct the ambiguities, or supersede the use, of common language in my discussions; and had felt,

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or seemed to feel, the application and the force of them: one of the two, a Metaphysician as well as a Mathematician, and a great admirer of MR HUME and of his philosophy, (of which he seemed either to have forgotten, or never known the greater part, and not clearly to have understood the rest, which is a very common case with the admirers of it), had favoured me with many observations on my argument, in *viva voce* conversation; and had, in the course of two years, given me in writing two different sets of objections, chiefly mathematical objections, to it; the first of which sets of objections, as he assured me beforehand, was to contain a complete *demonstration* of the error of my reasoning: yet somehow it has happened, that after hearing and maturely considering my answers to his own objections, he has not chosen that these should be published, either with or without his name.

The other person, too, had favoured me with many *viva voce* remarks on my Essay; and once gave me in writing a set of objections to it; not indeed as his own serious



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rious opinion, but as a specimen of what he thought might be urged against my argument, and would be most difficult for me to answer. I found no difficulty in answering them all, on the same plain principles on which I had uniformly proceeded: and he well knew, and, as I understood him, had acquiesced in my answers.

Both these persons must have known perfectly for what purpose, and at whose desire, the other's objections were put into their hands; and of course what would be the inevitable consequence, if they should express their approbation of them as valid in point of reasoning, and fit for public view. On this account, independently of the perfect conviction I have of their candour, I was sure they would never express any approbation of the objections which they did not truly feel; well knowing, as they must have done, that such proceeding would have been, not an unmeaning, but a fallacious compliment, and a most unfriendly action. I trusted that they would have perceived,  
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and would have made the author of the objections perceive, that however acute and ingenious his composition might be in point of metaphysical subtlety, it bore scarce any relation, and certainly could be no answer or objection, to my mathematical reasoning; nor even to my induction from the easiest experiments in physics, and the most familiar observations on the conduct of mankind.

Great, therefore, was my astonishment, about three months afterwards, to receive the same objections, very nearly *in statu quo*, with written testimonials of the approbation of the two persons to whose judgement they had been submitted. Both these testimonials I preserve with care, as literary curiosities: the one of the Metaphysico-mathematico-philosopher is in the strongest and most general terms; the one from the simple Mathematician is more particular and more guarded; but is in substance the same with the other.

The objections, double-fortified with these

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these testimonials, were finally sent to me in such a manner as effectually and for ever to preclude all further attempts at elucidation on the subject of them with the three persons concerned.

There was no more to be *said*.

The first thing to be *done* was, to ascertain whether it was from any defect in the composition in question, or only from a defect in my own intellects, that I did not see the force and merit of it; whether it was only I that could not understand it, or it that could not be understood. These two things I have long learned to consider as most essentially different. I cannot understand by far the greater part of the writings of ARCHIMEDES and of NEWTON; and I am sorry for it, as I have no doubt that the defect is entirely mine, namely, the want of sufficient mathematical knowledge: for I am well convinced, that all their writings may be understood; and that they deserve to be so, both on account of the ingenuity of the  
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reasonings and the importance of the discoveries which they contain.

I understand but very little of the medical system of GALEN, and still less of the writings of PARACELSUS; and not much more of the physics and the metaphysics of ARISTOTLE and of MR HUME; and I am not in the least sorry for it: nor do I wish to understand any more of them; for, judging of the whole from the part which I do understand, I presume with confidence, that if it were all intelligible, it would not be worth understanding; for this, I am sure, is the case with the part which I do understand; while, from finding the directly contrary quality in the specimens of the writings of ARCHIMEDES and NEWTON which I do understand, I unavoidably presume the same with respect to the great bulk of them which I do not understand.

To apply these general principles to the objections in question, was easy: in truth, I had almost involuntarily done it from  
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the moment I first saw them; and finding those parts of them which I understood either erroneous in point of observation, or inconclusive in point of reasoning, or confused and ambiguous in their meaning, or all three of these things together, I necessarily judged, that the more obscure parts of them, which I could not understand, either could not be understood, or at best did not deserve to be studied.

Not choosing, however, to trust absolutely to my own judgement, on a point of such consequence, I had recourse to the judgement of several of the most judicious, and acute, and best informed persons of my acquaintance, whom I prevailed on to examine strictly those very obscure passages of the objections, and to tell me what they thought of them, how they understood them, and whether they understood them or not. The result of these examinations was, to confirm in all respects the opinion of them which I had formed before.

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Obliged as I was, by my promise, to publish those objections, if I did not think them valid, and by my situation, to state very fully my answers to them, if they were published, I set about investigating the meaning of those dark passages, and tracing all the connections in the train of thought in them, with the most rigid accuracy. In the execution of this task, by far the most irksome I ever did or ever will undertake in the pursuits of science, I at last perceived, that the author of them, beginning with the common ambiguity in all reasonings about *Causes*, which I had been at much pains to point out and to correct, proceeded so rapidly to greater and greater degrees of obscurity and ambiguity, that in his second page I lost sight of his meaning completely: *Rebus nox abstulit atra colorem.*

On trying again and again to explore that dark passage, I had the good fortune, in a twelvemonth, or little more, to perceive for certain, that it could not be understood: the composition, from real incongruity



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congruity of thought, amounting to a genuine *Bull*, as truly as the unlucky Frenchman's indignation at the old woman for changing him at nurse. Many other passages I then saw clearly to be approximations to the same kind of incongruity, and was enabled to answer them accordingly.

The objections, and the answers to them, shewing some of those incongruities, are printed in the Appendix to the Essay, to which they relate; and which must be read before they can be understood. Every person then may judge for himself, whether the account here given of them be exaggerated, or in any way misrepresented; and will, I trust, on mature consideration and trial, agree with me in thinking, that this real case affords an illustration, stronger, if possible, and certainly more in point, than any of the imaginary extreme cases that I had contrived, to shew the nature and causes of some kinds of obscurity and perplexity of thought, and the remedies or means  
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for correcting them. Such persons may judge, whether it would have been *possible* to have thought and argued in the same way, if, either instead of vague, ambiguous, general terms, or along with these, and in explanation of them, particular instances, such as BACON recommends, and I suggest, had been duly employed.

Yet those ambiguous expressions and reasonings were satisfactory, not only to the author of them, but to two other men, of undoubted candour, and uncommon talents, and great knowledge, and much accustomed to, and very capable of, the acutest and strictest reasonings on different subjects, in which the notions to be reasoned about are clear and precise, and the terms expressing them distinct and accurate. I have no doubt but that many persons of good sense, even after this ample warning, will read the paragraph and the objections in question, without suspecting their defects; and will think them as good, or at least as plausible, as  
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any common metaphysical argument, such as those of MR HUME and DR PRIESTLY, on the doctrine of Causes. But let them try them by the test of particular instances; let them endeavour even to find such instances of the general propositions which they admit so easily, and which in truth save them the trouble of thinking, and especially the fore trouble of dividing, and as it were untwisting their own perplexed mass of thought, and the illusion will be at an end.

It is common to say, that very quick lively people, who often speak too fast, and of course sometimes injudiciously, speak without thinking, or before they think; but this is a mere hyperbole, and taken literally would be absurd and incredible. Speaking implies thought, concomitant, or preceding, or both; however inaccurate such thought may be. All we ought to understand by those expressions is, that such people think too rapidly, and consequently in many cases erroneously and confusedly, and that they speak almost



most as fast, and to as little purpose, as they think.

The same indeed is true of very quick writing, (I do not mean penmanship, but composition), corresponding to very quick thinking; though writing be necessarily much slower than speaking, and have a strong tendency to make the thinking connected with it proportionably slow. Yet all men who have written much, *and well*, (excepting only SHAKESPEARE, who it is said never blotted), have been obliged to correct a great deal; have altered many a sentence which, on cool and slow examination, they found obscure, or confused, or erroneous, or unintelligible; and have blotted many as too bad even to be mended, and have written them anew. And I presume any candid admirer of SHAKESPEARE will own, that it would have implied no diminution of his well-merited fame, nor been any real loss to his readers, if he too had blotted and corrected a good deal.

On the subject of my inquiry, there is yet

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yet another danger and difficulty, very intimately connected with this of too rapid thought, and equally requiring attention and remedy, because it is equally inconsistent with that accurate and impartial attention to various circumstances of relation, and that distinct conception and equal consideration of them all, which are absolutely necessary for my purpose.

The object and plan of my investigation is, to ascertain, by strict attention, the differences, hitherto in a great measure overlooked, among many things, which have perhaps somewhat of a common nature, and which at least have a great and obvious resemblance. Now it happens unluckily, unluckily I mean for this inquiry, though no doubt happily for mankind in general, as is the case with every other principle of human reason, and I believe fortunately even for those who engage in the cultivation of most parts of science, that our attention is given, first, and most naturally, to any points of resemblance among different things, with little regard to the points of

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difference among them, even though the latter be much greater and more numerous, as well as more important.

To this principle we may fairly refer the well-known fact, that we are all so much struck with the accidental or the family likeness among different individuals, when seen separately, to such a degree even as sometimes to fall into very ridiculous errors, by mistaking one person for another; though perhaps, when the two persons were seen together, such a mistake would be thought impossible; the resemblance between them being evidently slight and imperfect, and the differences undeniably strong and obvious.

This principle, of an almost instinctive attention to resemblances rather than to differences, and a peculiar pleasure found in contemplating the former and not the latter, is, I believe, in a greater or less degree, nearly universal among mankind: but it is certainly much stronger in some than in others. It is generally strongest in men of quick and lively parts, and of  
warm



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warm imaginations. To poetic fancy it is almost essential: for all the beautiful, and sublime, and pathetic imagery, and all the striking allusions, which poetry displays, depend ultimately on the quick perception of various resemblances, which escape common observation, and, if they be not altogether visionary, at least are faint and distant. But it is not confined to poetry, nor to poets: in the common intercourse of life, and even in the pursuits of science, (in which some degree of it is highly useful), we can often see a remarkable excess of it in some individuals. *Ingenia sublimia, et discursiva, etiam tenuissimas et catholicas rerum similitudines et agnoscunt et componunt*, says BACON, whose observations, both on this tendency and on its opposite, are judicious and profound. *Nov. Org. lib. 1. 55.*

That very imperfection and ambiguity of common language on the subject of my inquiry, to which I here chiefly allude, is undoubtedly the result of this tendency, in philosophers as well as in the bulk of mankind, to dwell with eagerness

and pleasure on resemblances, though slight at best, if not imaginary, like the supposed analogies between things material and things intellectual, and to overlook even the most obvious differences. If mankind in general had not found, or fancied, some resemblance among all different kinds of causes, agents, or principles of change, these never would have been expressed in any language, as in fact they have been in all, by ambiguous words and phrases: and if philosophers in general had not perceived and acknowledged such resemblances, and dwelt too much on them, regardless of the more important differences among the things in question, they would not have been content with the common language on such subjects; nor would they have used it without many needful additions and corrections. They would have done, from the first dawnings of science, what Mathematicians must have done from the very beginning in geometry, and what physicians are at present endeavouring to do in medicine, and certainly will accomplish in process of time, with respect to the distinctions

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tinctions and nomenclature of diseases :— they would have contrived and fixed a language of their own, precise in its import, and adequate to their purpose.

Now all these evils and dangers ;—too great quickness of thought, precluding due consideration of all the circumstances that ought to be considered ;—too great disposition to attend to resemblances, and to overlook differences ;—the various points of resemblance and analogy among the things to be examined ;—and even the illusion necessarily resulting from the ambiguity of the terms commonly used to express them, must be obviated, in one way or another, before we can have even a reasonable chance of success in the proposed inquiry.

Some of them plainly could not, and I doubt much whether any of them could be effectually obviated, by any definitions or explanations of the terms employed : for, in the first place, every such explanation and term, as relating to a thing not barely conceived, and independent of any  
real



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real existence, like the defineable notions of geometry, but denoting a thing and relation which is understood really to exist independently of our conceptions, partakes so much of the nature of an axiom, or *petitio principii*, that it could not rationally be admitted without previously undergoing a rigorous examination, precisely of that kind which I propose to begin with. And, at any rate, definitions, as necessarily consisting of words, most of which are ambiguous, would not remove, but rather increase and multiply, our difficulties; by giving us at least two or three, and sometimes perhaps ten or a dozen, ambiguous words, instead of one; and possibly a false principle to boot.

But all those inconveniences may, I think, be in a great measure obviated by that kind of illustration, and that constant, or very frequent, reference to the particular instances meant, which I propose to employ.

This sort of reference and illustration, in the first place, either precludes, or immediately

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mediately corrects and dispels, the illusion of vague and ambiguous terms. In the second place, it peculiarly, and almost irresistibly, calls our attention to the differences as well as the resemblances of the things to be examined; for the most distinct and striking instances of such differences will naturally be selected, and placed in the strongest light: so that in this respect it comes as near as the very different nature of things intellectual and things material will permit, to the exhibition of well chosen and well arranged specimens in natural history, or of well conducted experiments in natural philosophy; the importance of which exhibitions in these two branches of science can require neither proof nor illustration. And, in the last place, it effectually retards, and for a short time forcibly arrests, that train of thought which it was usual, and easy, and pleasant to indulge; the too great rapidity of which prevented that attention to many circumstances, and that rigorous examination and comparison of different things and relations, which are absolutely

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absolutely necessary, and almost all that is necessary, for the purpose in view.

The quickness of thought is proverbial; and with good reason. Great quickness of it is by no means inconsistent with perfect accuracy and justness of it in certain cases; as appears by the almost instantaneous words and actions of many persons, which were characteristic of profound thought, and distinct recollection, and sound judgement, and fair and nice comparison of many different things. It cannot reasonably be doubted, that in some persons, on particular occasions, and on certain subjects, even a preternaturally increased rapidity of the train of thought may be of advantage, by bringing to the person, in a short time, many more thoughts than usual, not only in succession, but in combination, or rather simultaneous existence, also; without, however, preventing him from attending sufficiently to each of them.

It may even happen, that while the train of thought is greatly quickened, the  
energy



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energy or force of it shall be at the same time much increased; to such a degree even, that, with little or no voluntary effort, the most eager and effectual attention shall be given to every part of it; just as would happen in case of sudden and violent bodily pain, or of a loud peal of thunder, or very bright flash of lightning. In these circumstances, a person may judge and reason better, tho' more rapidly, than he could have done, however slowly, in an hour of languor, when he was dozing, or dreaming, over his own thoughts.

This advantage of unusually intense and rapid thought will, I presume, be experienced chiefly by persons who are naturally dull and slow in thinking.

It is well known, that the train of thought may be greatly quickened by various causes, both physical and moral; for example, by various passions, such as anger, love, jealousy; by very eager, though voluntary exertions; by bodily exercise, by wine, by madness, and many other diseases, especially of the febrile  
a a kind,

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kind, with some degree of delirium, or tendency to it.

“ Trifles light as air are to the jealous  
“ confirmations strong, as proofs of holy  
“ writ.”

On the spur of the occasion, as, for example, in circumstances of urgent necessity, or instant danger, or in a keen reply in a debate in a popular assembly, many men have *said* or *done*, equally showing that they *thought*, things, of which, from the general tenor of their words and actions, they could not have been supposed capable; and of which very probably, in other circumstances, they were not capable.

*Si Natura negat, facit Indignatio versum,*  
may have been truly said on many occasions; and Love, it is well known, has made some good poets, and bad ones innumerable, in all ages and nations: but however bad they may have been, they have contrived to make verses, and to find rhimes, and collect images and allusions;  
which,

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which, without the aid of that inspiring passion, it is not likely that they ever could have done.

I do not believe much more than half of what is said of the inspiration of wine: it is certain, however, that some slow dull people are quickened and enlivened, and made entertaining at least, if not even instructive companions, by what might justly be reckoned some excess in the use of it. But this effect of it is by no means constant, even in persons of that description; and in those of an opposite constitution of mind and body, the bad effects of it on the most valuable powers of thought are great and constant; so as soon to bring such persons to a state bordering on temporary idiotism, or madness.

Though much has been said, and with some truth, of the good effects of wine in producing rapidity and vivacity of thought, it has scarce ever been pretended that it favoured the exercise of discrimination and judgement. The only per-



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sons in whom it has ever been supposed not to have the very opposite effects, are some gentlemen of the Faculty. The ignorant vulgar would think, *a priori*, that, *ceteris paribus*, a physician who was sober would attend more accurately to the case of his patient, and compare and distinguish all circumstances better, and judge more soundly, and prescribe more rationally, than he could do when he was drunk. But some physicians, who should be supposed to know themselves best, and who certainly must have known how they acquitted themselves in those different situations, have boasted that they prescribed as well drunk as sober. In this they could not be mistaken; for, whether we consider the matter physically or logically, their boast amounts precisely to this, That they prescribed no better when they were sober than they did when they were drunk; which is undoubtedly a noble accomplishment; but it is not surely either wonderful or rare. I should guess, that it might be found in all physicians (to say nothing of the other limbs of the Faculty) who think as little what they are doing when sober,

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sober, as they do, or might do, when drunk: and though I can by no means admit that such persons constitute the majority of the profession, yet it must be owned, that they form at least a very respectable minority. — Their patients, however, who of course would take their word for any thing they said, especially for any thing relating to their own profession, and their own skill, probably had not rightly understood their phraseology on this point; and might either never discover their mistake, or not till it was too late.

With only this one exception, in favour of my own profession, and with this logical explanation of it, I think we may safely hold, that, within any reasonable limits, slowness of thought is favourable to discrimination, and comparison, and judgement, and to the perception of various relations, especially of such as are complicated and remote.

Those who are acquainted with the game of Chess can need no other, nor  
find

find a better, illustration of this important principle of thought and reasoning, than what that ingenious and pleasing, but laborious exercise, of thought, affords.

It is almost impossible to speak of it accurately, either in common or in philosophical language; for it has, as indeed it absolutely requires, a peculiar technical language of its own. But those who know any thing of the game will understand me sufficiently, when I say, that the primary laws of Chess are arbitrary; but the result in point of new or occasional relation, or influence of the pieces on one another, and the consequent expediency, or in some cases the absolute necessity, of a particular *move* in a given state of the game, is as much a matter of necessary consequence, and is by good Chess players as clearly perceived to be so, as any proposition in EUCLID's Elements, or NEWTON's *Principia*. The primary laws of the game correspond, in this kind of reasoning, to the axioms of geometry, and to the ultimate laws of physics, as in  
mechanics



mechanics and in optics; the state of the game, after any *move*, corresponds to the hypothesis, or case put, in demonstrative reasoning; the various indefeasible relations, or influences consequent upon any move or state of the game, correspond to the necessary relations, or consequences, which men of science can deduce from the laws of Nature, or the axioms of Geometry, considered as the *major* propositions, and the several cases put considered as the *minor* propositions of just syllogisms. About these, among men of competent judgement and knowledge, who will fairly attend to them, there can be no difference of opinion. But without such fair and deliberate attention, many, even of the most obvious and most immediate of them, will be overlooked by one, or perhaps by both, of the persons playing.

The number of even immediate relations or influences is often so great, that ordinary players do not perceive, that is, do not attend to, them all; nor can they do so without strict and distinct examination of many things, and many relations,  
 either

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either in succession or in combination. Now, this process of thought requires some time; and when sufficient time is taken for it, and when the attention is by any means called to the several proper objects, the result is uniform in every person.

The number of more remote relations, that is, such as after two or three *moves* will be immediate, and will have direct influence, is almost infinite, and far beyond the foresight of any ordinary person, even though well accustomed to the game. Yet much depends on foreseeing and being prepared for such remote, and (in one respect) contingent influences, on different suppositions; and much is done in this respect by every good player.

On these occasions, as on many in real life, the train of thought is often so quick as to baffle all calculation: but quick as it is, some time is requisite for it; and if this were much diminished, it could not be performed at all, or at least not to any good purpose. On the other hand, by taking

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king more time than usual, a very indifferent player will be able to perceive, and to do, what would have escaped a good one, who bestowed very little time in considering the state of the game. On this principle, I conceive that an ordinary player might easily see, and do, in two or three minutes, what PHILLIDOR himself could not do in half a second. I conceive, too, that if any two persons were to attempt to play at Chess as fast as they could move the *pieces*, they would soon find it impracticable: they could not accomplish even the most easy operations of thought requisite for the game. All judgement or skill would be confounded: no regular plan (corresponding to a train of reasoning in science) could ever be accomplished; nay, not even formed: the best players would overlook numberless advantages, and would run headlong into as many dangers. They would probably make many *false moves*; that is, *moves* contrary to the fundamental principles or rules of the game; which rules, though purely arbitrary in their first establishment, are, with respect to all who play at

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Chess,



Chess, as sacred and indefeasible as the natural laws of human thought. *False moves* at Chess, therefore, correspond very exactly to absurdities in logic and in geometry, to discoveries in metaphysics, and to *Bulls* in the common language and business of mankind. And if any person, either from obstinacy *will not*, or from want of attention, and too rapid thought, *cannot* observe those rules, and will persist in violating them, however great his talents may be in every respect, most certainly he can never play at Chess.

All these observations and reasonings, which are so well illustrated and proved, and almost rendered visible and tangible by the instance of that game of thought, are, I conceive, strictly applicable to the exercise of thought in the pursuits of science.

Admitting, what I believe is well ascertained as a matter of fact, that a Mathematician of superior genius and knowledge may perceive, almost intuitively, the truth of some very abstruse and complex  
propo-

propositions, and that he may very quickly see the demonstration of them; which it would be a work of great labour, and long time, to impart and explain to ordinary men; yet I believe the converse of the proposition is much more frequently found true; I mean, that men of ordinary talents, by labour, and time, and patient thinking, find out many propositions and demonstrations, which would escape the greatest Mathematicians, if they should not take time to think of them. And even when such propositions are discovered, whether by the transient efforts of superior genius, or by a kind of accident, or by deliberate patient thinking, they cannot be communicated to ordinary men, but by that peculiar process of thought which we call Demonstration; which is certainly a very slow, and to many people appears a very tedious, operation of thought. Both the slowness or seeming tediousness of it, and the great advantage, or rather the supreme authority of it, in point of validity, depend chiefly on this circumstance, that, by various helps and contrivances, the atten-

tion is called, pointedly and irresistibly, to each several step or link of the necessary relation between the proposition to be proved and things already known.

The capacity and the habit of this slow operation of thought, with due attention to every thought as it occurs, either singly, or in succession, or in combination with others, is essential, not only to mathematical, but to strict philosophical reasoning: but in many parts of philosophy, especially in the philosophy of mind, it has been much neglected; while by far too great attention has been given to every circumstance of analogy.

But though the capacity and the actual exercise of that slow process of thought be essential, it is not the only thing that is essential to philosophical investigations: nor was *patient thinking* NEWTON's only merit, as he too modestly said of himself. Many a very stupid fellow must have thought as slowly, and as patiently, and as long, as ever he did; but yet not to equally good purpose. He certainly pos-  
sessed



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possessed great quickness and comprehensiveness, as well as patience and command of thought. And I believe such quickness and comprehensiveness of thought, with such perfect command of it, that it can be exercised as slowly and patiently, or as keenly and rapidly, as different occasions may require, is one essential part of that rare combination of talents which constitutes true mathematical and philosophical genius.

Probably some rude conception of the importance, and perhaps some actual experience of the advantages, of these different conditions of the train of thought, may have given rise to the practice, common among several ancient nations, of consulting *twice* on their most important concerns; especially those of peace and war; first when drunk, and again when sober.

TACITUS, who mentions the fact very particularly with respect to the ancient German nations, whose manners and customs he seems to have been well informed

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ed of, gives but a confused and imperfect account of the reason and purpose of this custom. I suspect indeed that he had not rightly understood it himself; for he does not express himself concerning it with his usual precision, and clear strong sense: to me he appears even to contradict himself a little, in the account he gives of it.

*Deliberant, dum fingere nesciunt:—constituunt dum errare non possunt.*—The latter sentiment is undoubtedly right: the former, if it be truth, certainly is not the whole truth. But I rather think that TACITUS had mistaken the purpose and the effect of the first consultation.

The ancient Germans were not cunning nor deceitful; and if they had been so, they would no more have got drunk together at a council of state, than the *Corps Diplomatique* would do in London, or the Council of Ten at Venice; or if, by any accident, they had done so once, they surely would not have repeated it, nor made it an established custom. *Gens non astuta nec callida*

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*callida aperit adhuc secreta pectoris, licentia loci. Ergo detecta et nuda omnium mens postera die retractatur.* But what he had said just before appears to me a much fairer and more complete account of the matter : *De pace denique ac bello in conviviiis consultant : tanquam nullo magis tempore aut ad simplices cogitationes pateat animus, aut ad magnas incalescat.*

This last, I presume, was the chief circumstance of advantage which the honest Germans had in view in their first sitting. They had certainly found that wine inspired them with invention, and boldness, and enterprise; and gave them a degree of quickness, and vivacity, and ardour of thought, which Nature had denied them.

Their sober meeting next day, not only enabled them, but almost forced them, to examine anew, slowly and coolly, their first ardent and rapid thoughts, and to consider them rigorously in all their circumstances and relations. Thus they contrived, in some measure, to unite the advantages



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vantages of quick and ardent with those of slow and patient thinking. This was much to the credit of their metaphysical knowledge: it shewed great attention to their own thoughts in different circumstances, and accurate observation of those of others, as indicated by their words and actions; and it may fairly be regarded as a good proof and example of the advantages which even a rude and ignorant people may derive from the study of the laws of human thought.

Such being the advantages, and, in many cases, the indispensable necessity, of *slow* and *patient* thinking for good reasoning, the attempt to produce it almost forcibly, on a subject of very abstruse speculation, in which the want of it has been severely felt, and has in a manner frustrated the labours of many great philosophers, will not, I hope, be thought improper; though it must be done by means in some respects unpleasant, and which in any subject of elegant literature, or in any work addressed to the imagination or to the

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the passions of men, would be disgusting and insupportable.

Philosophy boasts not, like Poetry and Eloquence, to “whirl the throbbing heart along;” nor leads she her votaries through enchanted regions, “while at each step imagination burns.” She rather invites them patiently to explore the dreary mine, whose treasures will soon reward their toil; and bids them boldly try the mountain’s steep ascent, whose summit, hid in clouds, they must not hope to reach, but where every step they mount extends their view of the order and beauty of nature, and removes them farther “*vulgari tumultu, hominumque curis.*”

I am perfectly aware of an objection that may be made to my plan of investigating the nature of the different kinds of causes or principles of change, by comparing them with one another, and observing wherein they agree, and wherein they differ; which objection, if it were valid, would be absolutely fatal to my inquiry. I allude to the opinion, which, with va-

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rious modifications, hath been taught by many philosophers, inculcated and adorned by poets, and, as it is thought, in some measure admitted by mankind in general, That every change which we observe proceeds, (as many of them unquestionably do), either immediately or ultimately, from the agency of some living Being, perhaps from the immediate operation of the Supreme Being himself.

VIRGIL seems to have been peculiarly fond of the latter opinion, and has either expressed it, or alluded to it, repeatedly, and in a very beautiful manner; as, for example, in the following passages.

*Ab Jove principium, Musæ, Jovis omnia plena.*

————— *Deum namque ire per omnis  
Terrasque, tractusque maris, cælumque profundum.*

*Hinc pecudes, armenta, viros, genus omne ferarum,*

*Quenque sibi tenuis nascentem arcessere vitas  
Scilicet huc reddi deinde ac resoluta referri*

*Omnia :*



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*Omnia: nec morti esse locum, sed viva volare  
Sideris in numerum, atque alto succedere cælo.*

*Principio cælum ac terras, camposque liquentis,  
Lucentemque globum Lunæ, Titaniaque nstra  
Spiritus intus alit, totamque infusa per artus  
Mens agitat molem, et magno se corpore miscet.  
Inde hominum pecudumque genus, vitæque vo-  
lantum,  
Et quæ marmoreo fert monstra sub æquore pontus.  
Igneus est ollis vigor, et cælestis origo  
Seminibus, quantum non noxia corpora tardant,  
Terrenique habetant artus, moribundaque mem-  
bra.*

But no poet has been more fortunate in expressing those sentiments than POPE, who certainly must have had in view VIRGIL's lines; which, however, he has undoubtedly surpassed in the following admirable verses:

“ All are but parts of one stupendous whole,  
“ Whose body Nature is, and God the soul:  
“ That, chang'd through all, and yet in all the same,  
“ Great in the earth, as in th' æthereal frame,

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“ Warms

- " Warms in the sun, refreshes in the breeze,
- " Glows in the stars, and blossoms in the trees,
- " Lives through all life, extends through all extent,
- " Spreads undivided, operates unspent."

It has been suspected, and with some appearance of reason, that these sentiments which POPE hath so happily expressed, had been communicated to him by LORD BOLINGBROKE, who meant to convey by them opinions very different from what POPE had in view. They are certainly very nearly, if not precisely, the same with those which make part of SPINOZA's system of Atheism. But, disregarding this suspicion, which, with respect to POPE, at least, would be highly unjust, as well as groundless, we may consider his verses as *bona fide* intended to express, in a forcible and lively manner, the just and pious sentiments of a philosopher strongly impressed with the perception of that power, and wisdom, and goodness, which every part of nature so amply displays. Considered in this point of view, they are unexceptionably good. But it must be remembered, that they are only poetical,

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poetical, and very highly metaphorical, expressions of those just and pious sentiments, in which every person of sound judgement must acquiesce ; but by no means accurate and literal expressions of strict philosophical truth.

We admit them, and we are pleased with them, as we are with many similar prosaic, but not less sublime, expressions of our own dependence on the power and goodness of God. Thus, in speaking of the Supreme Being, we call him our Father ; we say, that in him we live, and move, and have our being. Such expressions, taken metaphorically, are just and pious ; but taken literally, they would be impious, as well as extravagant.

To suppose that when we call God our Father, we mean to express literally the same relation between him and us that we usually express by the word *Father* ; or to say that we have no other fathers or ancestors but him, would be either impiety or insanity in the highest degree.

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To suppose that the admission, that in him we live, and move, and have our being, should supersede all physical inquiries into the structure and functions of our bodies, by which we are enabled to live, and move, and have our being in this world, would be not merely unphilosophical, but extravagant.

On the same principle, and for the same reasons, when we admit as just as well as pious, the sentiments of POPE, and VIRGIL, and other poets, with respect to the dependence of all natural phenomena on the agency of the Supreme Being, it is only in such a general and metaphorical sense, as shall leave the inquiry into the nature and influence of all secondary and subordinate causes, as entire and free as the inquiry about the father and other ancestors of a person, in point of genealogy, is left, after admitting that GOD is the Father of all.

If such expressions and sentiments had been confined to poets only, there could have been no occasion to consider them in  
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the prosecution of my inquiry. But that has not been the case: they have been considered by some philosophers as rational opinions at least, and fit subjects of scientific inquiry, if not even self-evident truths, or what I should call Laws of human Thought.

Of this I need offer no other proof than by quoting a few passages from the writings of one, whose freedom both from common and from philosophical prejudices, as well as his superior talents, and his zealous and successful efforts in the pursuits of science, though they cannot, in an age of liberal and rational inquiry, give to his opinions the force of authority, must intitle his sentiments to peculiar attention, and to the strictest examination. I allude to DR REID, from whose *Essays on the Active Powers of Man* the following paragraphs are selected.

“ The exertion of active power we call *Action*; and as every action produces some change, so every change must be caused by some exertion, or by the cessation of  
some

some exertion of power. That which produces a change by the exertion of its power, we call the *Cause* of that change; and the change produced, the *Effect* of that cause."

Page 12, 13.

"From this principle it follows, that every thing which undergoes any change must either be the efficient cause of that change in itself, or it must be changed by some other being.

In the first case, it is said to have *active power*, and to *act* in producing that change. In the second case, it is merely *passive*, or is *acted upon*; and the active power is in that being only which produces the change."

Page 276.

"Thus we say, the sun rises and sets, and comes to the meridian, the moon changes, the sea ebbs and flows, the winds blow. Languages were formed by men who believed these objects to have life and active power in themselves. It was therefore



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fore proper and natural to express their motions and changes by active verbs."

Page 282.

" But as to the real causes of the phænomena of nature, how little do we know! All our knowledge of things external must be grounded upon the information of our senses; but causation and active power are not objects of sense; nor is that always the cause of a phænomenon which is prior to it, and constantly conjoined with it; otherwise night would be the cause of day, and day the cause of the following night.

It is to this day problematical, whether all the phænomena of the material system be produced by the immediate operation of the first cause, according to the laws which his wisdom determined, or whether subordinate causes are employed by him in the operations of nature; and if they be, what their nature, their number, and their different offices are? And whether, in all cases, they act by commis-

fion, or, in some, according to their discretion?"

Page 286.

" A constant antecedent, or concomitant of the phænomenon whose cause is sought, may answer the purpose of the inquirer, as well as if the real cause were known. Thus, a sailor desires to know the cause of the tides, that he may know when to expect high water: he is told, that it is high water when the moon is so many hours past the meridian. And now he thinks he knows the cause of the tides. What he takes for the cause answers his purpose, and his mistake does him no harm."

Page 287.

It can hardly escape observation, that the notion of cause, as thus explained by DR REID, is widely different from that commonly adopted by philosophers, either Metaphysicians or physical inquirers; so very different indeed, that the axiom, *Every change or effect must have a cause*, as understood by him, will scarce be admitted

ted even by physical inquirers; and will not only not be admitted by Metaphysicians as a principle universally true, but will be regarded by many of them, especially by DR PRIESTLY, and all the disciples of MR HUME, as universally false, and even impossible.

The reason of this striking difference between them plainly is, that DR REID, like many philosophers who had preceded him, had attended too much to one kind of *Cause*, or principle of change, namely, what a man, or any other *living* Being, is to his own voluntary actions, or to those changes which he produces directly in himself, and indirectly in other beings, by the occasional exertion of his own power. This kind of *Cause* may be called exclusively an *Agent*; I mean, merely for distinction's sake, not as implying any opinion about it. That there are such *Agents*, and that many *Events* are to be referred to them, as either wholly or partly their *Causes* or principles of change, I acknowledge to be certain, and even self-evident. But that *all Events*, without exception, are to be referred to



some *such Causes*, and necessarily imply the operation of *Agents*, and the exertion of *Power*, I can by no means admit; for I neither perceive it as a self-evident necessary truth, nor have I ever met with any evidence of it.

It appears to me, that DR REID, and many philosophers who have thought and argued nearly as he hath done on this point, have gone just as far wrong on one side as MR HUME, DR PRIESTLY, or MR LEIBNITZ, or, in general, all assertors of the doctrine of Necessity, have done on the other. These philosophers have attended too much to another kind of *Cause*, which we shall call, but merely for the sake of distinction, and without implying any opinion about it, *Physical Cause*; as, for example, what impulse is to motion, heat to expansion, fusion, and evaporation, the earth to the fall of a stone towards it, the sun and moon to the tides, &c. That there are *such Causes*, or, in other words, that we conceive some relation to subsist between the various things and events respectively that have been mentioned, which

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which relation we are accustomed to express by the terms *Cause* and *Effect*, is, I think, just as certain as that there are *Agents* for other *Events*. It appears to me likewise abundantly evident, that these two relations are somehow different from one another; and that both of them are very different, and easily distinguishable, from various other relations of event.

When I say, that heat is the cause of the melting of ice, I mean, and I presume I shall generally be understood, to express a certain relation between the heat and that event, and a relation essentially different from that between a man and any of his voluntary actions; different too from that between motive and action; different even from that between evidence and belief; different from that between the vital principle (or life) of a plant or animal and its growth, its functions, and its diseases; different from that between the various occasional or exciting causes, (such as Air, Water, Light, Heat, Cold, Contagion, Poison, &c.), and the growth, the functions, and the diseases, of plants  
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and animals; different even, in some measure, from that between impulse and motion; and different from that between any body and the fall, or tendency to fall, of another body towards it.

All these relations, which I mention only as specimens, but by no means as a complete enumeration, of the various relations of event, and of the different *genera* and *species* of Causes, I conceive to be not only different, but easily distinguishable from one another; and I should think it impossible for any one, who had the ordinary faculties of mankind, to confound any one of them with the simple relation of priority and succession among things and events; as, for example, that between day and night, or between the morning dawn and the rising of the sun. No man surely ever regarded the dawn as the cause of the rising of the sun, or night as the cause of day. But as the philosophy of MR HUME, which some other Metaphysicians have been proud to adopt, and even his definitions and explanations of the relation of cause and effect, lead men to con-

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found all those notions, it may be expedient to keep in view the simple relation of priority and succession, even in our inquiries concerning causes; were it only that we may be the better enabled to perceive what more there is in the relation of every kind of cause and event, than merely the one succeeding the other.

I should think it almost equally impossible for men of sense and competent knowledge to confound any one of those relations with that of *necessary* connection or relation, which we either perceive intuitively, or discover by reasoning, in geometry. These connections in geometry are not even relations of event, but only of quantity. Yet they have been in some measure confounded with the others, in the reasonings of many philosophers, both ancient and modern. Many of ARISTOTLE's illustrations, in his reasonings about causes, are taken from geometry. In modern times, it has been thought extravagant and impious to doubt of the necessity of the relation of cause and effect; possibly in a great measure because that opinion

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was held by MR HUME, who no doubt thought he had made a great discovery in metaphysics when he shewed that we had no perception and no proof of any necessity in the relation between particular causes and their effects. On this account it may be proper to have in view the necessary relations of quantity, as well as that of simple priority and succession of events, in examining the various kinds of causes, and their several relations to the events proceeding from them.

The most common tendency among philosophers who have speculated concerning the nature and influence of causes, at least in modern times, has been to overlook some of the kinds of causes that have been mentioned, and to confound others of them; to attend chiefly to *physical causes*; to suppose that for every event, even for the voluntary action of a living person, there *must be* such a cause; to maintain that the relation of motive and action is essentially the same with that between physical cause and effect; and thereby to exclude, not only the necessity, but almost the

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the possibility, of the operation of an *Agent*, or cause of that kind which DR REID, in the passages quoted from his *Essays*, and which many other philosophers have thought universally necessary for the production of change.

After the most careful examination of the subject, I cannot help dissenting from both those philosophical systems; from the one, because I think there are many events which we have no reason whatever, either from the primary laws of human thought, or from particular observation, experiment, and induction, to refer to *Agents*; from the other, because I think there are many events, for example the voluntary actions of mankind, which ought to be referred to *Agents* as their proper and chief principles of change.

When we refer the voluntary action of a person to the agent as the author of it, that is, as the *Cause*, or principle of change, from which it proceeded, we cannot reasonably be charged with maintaining the absurdity, that there may be an

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event or effect without a cause. As little can we be charged with that absurdity, when we refer the melting of ice, and the boiling of water, to heat; and when we refer the fall of a stone to the ground, and the ebbing and flowing of the sea, to the influence of the earth on the stone, and of the sun and moon on the ocean, according to the principle of general gravitation. We have, I think, every reason that the nature of the subject and of our own faculties can admit of, to believe, that there are among things inanimate, and consequently incapable either of *power* or *activity*, (in one sense, and that too the literal and most common sense of these terms), such relations that they may be mutually causes or principles of change to one another, without any exertion of *power*, or any operation of an agent strictly so called. Such relations, for aught that we know, may take place among bodies at great distances from one another, as well as among bodies really or seemingly in actual contact; and they may vary, both in degree and in kind, according

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ding to the distances between the bodies.

From the most extensive and accurate observation of many familiar events, we infer, that there are such relations among things inanimate. But we know them only as matters of fact. We may reasonably doubt, and perhaps inquire, whether they be strictly necessary truths, like those of geometry, or matters of arbitrary appointment, like the laws of Chéss, and of all other games. The result in point of event, in any given case of the application of such causes, will be the same, whether the relation among the bodies be necessary, or contingent and arbitrary; provided only it be established and constant.

It is perfectly conceivable, that a relation of event, strictly necessary, and independent of any arbitrary appointment, may be known to us only as a matter of fact, and learned only by observation, experiment, and induction; just as some geometrical propositions, for example the 47th and 48th of the first book of EU-

CLID, which are known to men of science as strictly necessary truths, are known to many carpenters and bricklayers only as matters of fact; and might have been learned by such men by means of repeated trials, and inductive reasoning. It is even conceivable, that our faculties, which are abundantly sufficient to enable us to understand the difference between the two supposeable cases, may not be sufficient to enable us to decide the question, nor to perceive the necessity of such relations, however real it may be; just as the faculties of a stupid and ignorant bricklayer may not be sufficient to enable him to understand the demonstrations of the first book of EUCLID, that is, to perceive the necessity of those relations of quantity which are demonstrated in it; though he may understand the mere propositions, and be able to apply them to practical use in his daily occupation; as, for example, to make the angles of his buildings right angles, by *setting off* at each of them a triangle of such proportions, that the square of the side opposite to the angle, which he wishes to be a right one, shall be equal



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equal to the sum of the squares of the two sides which form that angle.

Supposing that some of the relations of event, particularly that of physical cause and effect, comprehending the circumstance of their *constant conjunction*, as it has been very properly called, which seems always to be implied in strict physical reasonings, as well as in the common notions and actual conduct of mankind, are necessary, like those of quantity, which are the objects of mathematical reasoning; the opinion, that there *must* be an exertion of power or activity to produce such events, would be not merely erroneous, but absurd: for, on that supposition, no power or agency would be requisite to produce them, any more than to produce the relations of geometry; and no power in heaven or earth could prevent them from being what they are.

If that supposition be thought extravagant or impious, let us take the more modest, and perhaps more rational supposition, that such relations, comprehending  
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that circumstance of constant conjunction, subsist only by the wise but arbitrary appointment of the Supreme Being, who might have made them different if he had thought fit; still the necessity, at least, if not the possibility, of any exertion of power, or of any agency, would be completely excluded; while some other relations of event, that do not comprehend the circumstance of the *constant conjunction* of the cause with its effect, but, on the contrary, imply their occasional and very frequent separation, as, for example, the relation of motive and action, not only do not exclude, but absolutely require and imply, the operation of an agent, and the exertion of power.

If any person wish to consider more fully this general and very abstruse point, let him be peculiarly careful to attend to the *things* and to the *suppositions* in question, and not to be misled or confounded by the ambiguous words and phrases generally employed on this subject, and by the nugatory arguments founded on them. Let it be remembered, that the question is not, whether

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whether body can *act*, either where it is, or where it is not; but simply, whether it be consistent with the laws of human thought to believe, that such relations may subsist among bodies, either by necessity, or the nature of things, or by the arbitrary appointment of the Deity, that they shall, in certain circumstances, be mutually causes or principles of change to one another.

It is plain from the passages quoted from DR REID's *Essays*, and indeed from the whole tenor of his reasonings on these subjects, that he holds firmly that opinion which appears to me to be erroneous; and that he had not attended to the many important differences among the several kinds of causes; especially between *Agent* and *Physical Cause*.

Supposing him to be wrong in his opinion on the point in question, it is but justice to him to acknowledge, that his error can in no degree affect the validity of his observations and reasonings in morals, or with respect to the active powers of  
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man: for whatever may be thought of numberless other events, and of their causes, it must be admitted, that every voluntary action of a person does proceed from some exertion of *Active Power*, or some such *Cause* as he supposes to be universally necessary for *every* change.

His opinion as to the general point deserves peculiar regard, because he states it, not as a bare opinion, or conjecture, or prejudice, as it might be thought, but as a matter of general observation and belief among all mankind; the expression and evidence of which is interwoven in the very structure of language, and may in some measure be inferred by induction from it.

I admit that much may be learned with respect to the laws of human thought on every subject, and very particularly on the subject in question, by careful observation of the general principles and structure of language, and accurate induction from it. I acknowledge that DR REID has on many occasions made an admirable and truly

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truly philosophical use of the evidence which language affords with respect to thought. But on this point I think his observations inaccurate and inconclusive, and his induction imperfect, and consequently erroneous.

The subject, which is undoubtedly a curious and extensive one, and, as I think, really important with a view to science, must be fully considered in the prosecution of my inquiry. At present I shall only observe, that DR REID, in the passages under consideration, has not attended sufficiently, if at all, to the very different import of *Neuter* from that of *Active* and of *Passive* verbs; and that he seems quite to have overlooked the difference between the literal and the metaphorical use of *Transitive* verbs, either in the *Active* or *Passive* voice.

The metaphorical use of such verbs is the most common of all metaphors. I believe indeed it is nearly universal in all languages, and has become almost indispensable, and so familiar to all mankind,

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that they can scarce be prevailed on to attend to it, or to regard it as metaphorical and ambiguous. It has been a grievous stumbling block to many philosophers, as well as to DR REID. Of this no other evidence can be needed than what MR LOCKE hath afforded in his philosophical writings.

It appears sufficiently from what he says, book II. chap. XXI. sect. 20. that he perceived clearly what embarrassment and confusion resulted from a metaphorical use of such expressions as implied the notion of agency, or operating, in things of which Agency, in its strict and literal import, is not predicable. But he adds, " It looks like too much affectation  
 " wholly to lay them by; and philosophy  
 " itself, though it like not a gawdy dress,  
 " yet, when it appears in public, must  
 " have so much complacency, as to be  
 " cloathed in the ordinary fashion and  
 " language of the country, so far as it can  
 " consist with truth and perspicuity. But  
 " the fault has been, that faculties have  
 " been spoken of, and represented as so  
 " many distinct agents."

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The truth is, that the implication of agency by the use of such expressions, is improper with respect to motives and physical causes, as well as with respect to faculties, and leads to much perplexity and ambiguity, as LOCKE well knew. Yet in the course of his inquiries, and even in that very chapter (*Of Power*) in which it was of the utmost consequence for him to guard against such ambiguities, he got into a puzzle by means of them, as he very candidly acknowledges, (sect. 71.), and endeavours to get out of as well as he can. But in this he hath not succeeded. The whole train of reasoning in that chapter, and particularly in that 71st section of it, is perverted, and rendered unsatisfactory, and in many places almost unintelligible, in consequence of that very ambiguous and metaphorical use of such common expressions as those under consideration.

We want an instrument that shall fairly separate and distinguish all our different thoughts, as NEWTON's Prism does with respect to the different rays of light; and

a perfectly unambiguous 'language would be just the instrument for our purpose: But an ambiguous and metaphorical language, which all common languages are in a great degree, has the very opposite effect; like a false or coloured *medium*, it makes us confound those things, which, if we had not been embarrassed with it, we could easily have distinguished.

The following passage in the writings of Father BUFFIER is so judicious, and so much to the purpose, that I quote it as the most clear and concise explanation I have ever seen of one of the worst ambiguities that we have to encounter in our inquiries.

*“ En effet personne se trompe-t-il à l' idee de ces facultés différentes? Ne sait-on pas que c'est la même ame, qui produit diverses operations? Selon que nous trouvons plus ou moins de difference dans ces operations, nous nous figurons plus ou moins de facultés différentes d'ou elles procedent; bien que ces facultés ne soient au fond et reellement qu'une seule et même substance, qui est l'ame.—*

*L'ame*

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*L'ame n'est elle pas capable de penser ? En la considerant simplement par cet endroit, je l'appelle ENTENDEMENT ou INTELLIGENCE. N'est elle pas capable en certaines occasions de vouloir à son grè et à son choix une chose, ou de ne la vouloir pas ? Par cet endroit je l'appelle liberté."*

But the various ambiguities and perplexities in reasoning that result from the vague and metaphorical use of the expressions, which, in their strict and literal meaning, denote agency, and the differences between the relation of agent and action and that of cause and effect in physics, cannot be properly discussed in such a preliminary dissertation as this. At present I can do no more than barely mention that there are such ambiguities, and such differences, which shall be considered fully in the prosecution of my inquiry. Nay, tho' in studying the subject I had begun with examining those things, I dare not begin by offering to the public the result of my inquiries with respect to them. For whatever I may think of the importance of that part of my inquiry, or of my own success

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in the investigation of it, I am perfectly sensible that I can claim no merit in literature or science that should intitle me to call the attention of men of science to a subject which hitherto they have either overlooked altogether, or have considered as unworthy of their attention.

I think it better to begin with submitting to their judgement the result of my investigation with respect to the difference between the relation of motive and action and that of cause and effect in physics; for this is a point that many philosophers of the greatest name in modern times have considered as of great importance, and which is at this day a matter of keen controversy among many living philosophers.

It will be evident, that the ascertaining of it must tend greatly to facilitate the investigation of the difference between the relation of agent and that of physical cause, by explaining in some measure the nature of the former; and, what is more to my purpose at present, if it shall be found that I have succeeded in exploring

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ring the difference between the relation of motive and that of physical cause, I shall think myself intitled to call the attention of men of science to the other subject, the nature and importance of which they seem not in general to have known.

As the subject of my first Essay, the only one at present published, has employed the thoughts and the pens of many great philosophers during the last hundred and fifty years, and still remains a matter of dispute among them, it may reasonably be expected that I should state what pretensions I can have to be listened to in treating of it; for it will be taken for granted, that I have, or think I have, something very much to the purpose to offer, when I voluntarily begin with the discussion of a subject, on which it appears not unreasonable to suppose that all the powers of the human understanding have already been exerted in vain.

The claims of my Essay to some attention,

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tion, and, though to no favour, to a strict and rigorous examination, are as follow.

1. It is perfectly new, and even singular, in every respect; which, on so trite a subject, is surely a recommendation.

2. It contains nothing in the least unfriendly to the interests of religion, of virtue, or of useful knowledge.

3. It contains nothing contrary to common sense.

4. It contains no appeals to common sense; which appeals many philosophers might regard as nugatory and contemptible.

5. It contains no appeals to consciousness with respect to any matter of fact; which appeals might place men of science in the unpleasant situation of contradicting one another, in circumstances where one party or the other must be deemed guilty of wilful falsehood.

6. It



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6. It contains the means of detecting falsehood, if any already has been, or hereafter shall be employed, by either party, in the controversy, with the same degree and kind of evidence that is held sufficient to convict a person of bearing false-witness in a court of justice.

7. It brings a long-lasting metaphysical controversy to the test of that kind and degree of evidence which we have in mathematical and physical science; employing only strict mathematical reasoning by necessary consequences, and bringing the result of such reasoning, and every question of fact, to the test of open unequivocal experiment.

The very peculiar mode that I have employed in treating this subject was suggested to me, near ten years ago, by the following judicious remarks and happy illustrations of DR REID, in his *Essays on the Intellectual Powers of Man*; which work I had the pleasure of perusing some years before it was published.

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In treating of analogy, and pointing out the imperfections and dangers of certain analogical reasonings, he says, (p. 55. 56.)

“ To illustrate more fully that analogical reasoning from a supposed similitude of mind to body, which I conceive to be the most fruitful source of error with regard to the operations of our minds, I shall give an instance of it.

When a man is urged by contrary motives, those on one hand inciting him to do some action, those on the other to forbear it; he deliberates about it, and at last resolves to do it, or not to do it. The contrary motives are here compared to the weights in the opposite scales of a balance; and there is not perhaps any instance that can be named of a more striking analogy between body and mind. Hence the phrases of weighing motives, of deliberating upon actions, are common to all languages.

From this analogy, some philosophers draw very important conclusions. They  
say,

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say, that as the balance cannot incline to one side more than the other, when the opposite weights are equal; so a man cannot possibly determine himself, if the motives on both hands are equal; and as the balance must necessarily turn to that side which has most weight, so the man must necessarily be determined to that hand where the motive is strongest. And on this foundation some of the schoolmen maintained, that if a hungry ass were placed between two bundles of hay equally inviting, the beast must stand still, and starve to death, being unable to turn to either, because there are equal motives to both. This is an instance of that analogical reasoning, which I conceive ought never be trusted: for the analogy between a balance and a man deliberating, though one of the strongest that can be found between matter and mind, is too weak to support any argument. A piece of dead inactive matter, and an active intelligent Being, are things very unlike; and because the one would remain at rest in a certain case, it does not follow that the other would be inactive in a case somewhat

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similar. The argument is no better than this, that because a dead animal moves only as it is pushed, and, if pushed with equal force in contrary directions, must remain at rest; therefore the same thing must happen to a living animal: for surely the similitude between a dead animal and a living, is as great as that between a balance and a man."

The two cases put by DR REID, in this illustration, the dead horse under the influence of certain forces or physical causes of motion, and the living horse under the temptation of certain bundles of hay, appear to me fair instances of the two different kinds of causes and relations of event, which we express by the phrases, *Motive* and *Action*, and *Cause* and *Effect* in physics. Each of these relations, no doubt, may justly be regarded as a *Genus*, comprehending several *Species*, the differences among which may be very curious and important, while yet there is something, probably a great deal, in common among all the different *Species* of each *Genus* respectively.

No

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No person of competent attention and judgement will dispute, that there is much in common, and yet many things different in the influence or relation of various kinds of motives, such as Instincts, Appetites, Passions, Desires, Judgements of Duty, Expediency, &c. : nay, it cannot reasonably be disputed, that there are some differences of the relation, though in the main it be the same, according to the degree of certain motives. Thus, a certain degree of Pain, of Hunger, or of Fear, will be generally understood to amount to compulsion, which a much lower degree of them would not be conceived to do.

As little can it admit of doubt, that there are some considerable differences among the influences or relations of different physical causes, even with respect to bodies perfectly inanimate; that is, excluding all substances that have animal or vegetable life. Thus there is a difference between the relation of mechanical and chemical causes; enough at least to shew, that in the production of chemical phenomena,

mena, something else is concerned besides the obvious external cause applied; as, for example, heat. The three different chemical states of bodies, Solidity, Fluidity, and the form of Elastic Vapour, which we refer to different degrees of heat as their physical causes, are not purely the effect of such causes; nor are they perfectly indifferent to any bodies, as rest and uniform progressive rectilinear motion are to all bodies. A body once put in motion with any velocity, and with any rectilinear direction, will continue in motion with that velocity and in that direction, though the cause of its motion be removed. But a body will not remain in the form, either of an aeriform, or of an aqueous fluid, when the heat which was the cause of its being in one or other of those forms is withdrawn.

In another point of view, we may observe, that the effects of heat (expansion, fusion, evaporation) are not uniformly nor regularly proportioned to the degree or quantity of the cause in different bodies, nor even in the same body. The *kind* of  
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the effect, as, for example, the change of form, is very different in different degrees of heat; unlike that uniformity of the effect in kind, and its proportion in degree, with respect to quantity and direction of motion, according to the quantity and direction of the force or cause of motion applied.

Men may doubt whether these differences, and peculiarities in the influence of chemical causes, depend on the chemical relations of the particles of bodies to one another, or on some other perhaps unknown and unsuspected causes. But the facts mentioned are as unquestionable as that bodies left to themselves will not continue in a curvilinear, or accelerated, or retarded motion; as they will in a rectilinear and uniform motion, or as they will continue at rest.

If such chemical phænomena as fermentation, crystallization, solution, and other elective attractions, as they are called, be considered, and be compared with the phænomena of mechanical philosophy, the

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the differences between these two *Species* of physical causes will be still more apparent.

If the physiological and pathological phenomena of animal and vegetable life be examined, and if the relation of them to their several external, exciting, occasional causes be duly considered, still greater differences between the influence of such causes and that of mechanical and chemical causes on the one hand, and that of motives on the other, will easily be discovered; and evidence will probably be found, that some other principle of change, or kind of cause, different from a living intelligent *Agent*, and different from any mechanical or chemical cause, is concerned in the production of such phenomena.

None of these differences are to be disregarded in such an inquiry as mine; and it may be expedient occasionally to have recourse to all those and many other instances of different relations of event, for such illustrations as they can afford. But  
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for shewing the difference between the relation of motive and action and that of physical cause and effect, it is sufficient to consider each of them in the most general view, without regard to the specific differences either of motives or of physical causes.

Such a view of them DR REID's illustration presented to me.

There could be no doubt that the result would be very different in the case of the physical causes applied to the dead horse, and in that of the motives applied to the living one. The dead horse must be conceived to be on the same footing with a stone, or any lifeless body, under the influence of equal opposite forces. The living horse must be conceived to be on the same footing with a living man under the influence of equal opposite motives, or of equal opposite forces. It was plain to me, that the dead horse must remain at rest, as a dead man would do in the same circumstances; and equally plain to me, that neither a living man nor a living horse would do so.

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It was easy to know what account would be given of this difference by those who professed to believe that there is no essential difference between the two relations in question; but as this account of the different result in the two cases consists of an arbitrary and gratuitous hypothesis, I could not acquiesce in it. This, however, I was sensible was no refutation of it.

It next occurred to me, that the case put, to wit, the application of *equal* and *opposite* motives and physical causes, was but *one* out of many cases of the application of them respectively, that might be clearly conceived, and, if needful, might be tried experimentally.

The causes or motives applied might be opposite without being equal, or equal without being opposite; whether equal or unequal, they might exactly concur, or they might neither exactly concur, nor directly oppose one another.

In all these different cases, I could foresee

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see with perfect certainty what *would*, and, as I conceive, *must* necessarily, be the result, in the application of physical causes of motion to the lifeless body. But I could not perceive as *necessary*, nor even as *certain*, what the result would be in the corresponding cases of the application of motives. But I could perceive, with a degree of *probability* approaching so near to *certain* as to supersede the necessity of trying any experiment, that the result from the application of motives would be totally different from that of physical causes in the corresponding cases. Some of these differences, too, appeared to me of such a kind as to preclude the necessity, at least, if not even the possibility, of arbitrary hypotheses, and of appeals to consciousness,

On considering on what this certainty or necessity of the result in all cases of the application of physical causes depended, I perceived at once, that it implied at least this circumstance in the relation of such causes to their effects, that the influence of the causes was constant; or, in other

words, that they always had their full effects in kind and in degree, whenever they were applied. The only other circumstance that I could find to be requisite to the certainty or necessity of the result was, that the body or subject should be incapable of moving itself; which, whatever be the origin of the notion of such *inertia*, whether a kind of instinct, or a sort of rude induction from many familiar observations, is always comprehended as part of the conception of a lifeless body.—Both those circumstances seemed to me to be included in MR HUME's account of the relation of cause and effect; to wit, that all we knew of it was only the *constant conjunction* of two objects.—Those two circumstances taken together amounted to a perfect exclusion of any kind or degree of liberty or self-governing power in the subject,

But I found the result quite different in the corresponding cases of motives applied; contrary to what MR HUME, DR PRIESTLY, and all other assertors of Necessity had maintained. It was plain, then,



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then, to me, that there must be a difference between the two cases with respect to one or both of those circumstances on which the certainty or necessity of the result from the application of physical causes depended.

I soon perceived, that the influence or effect of motives was not constant, as the general assertions, and the particular and very pointed illustrations of MR HUME and DR PRIESTLY, represent it to be; but that it was only occasional and separable.

This, however, did not fully explain the difference between the two relations in question; for the separability of motive and action, though a very important circumstance, is not the only point in which this relation differs from that of physical cause and effect: nor did the ascertaining of that point even refute the doctrine of Necessity as generally maintained, by proving, that there is in living persons any self-governing power, or liberty, or independent activity, different from what there  
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is in a lifeless body. It might still be maintained, that though motives are separable, and in fact are often completely separated, from their corresponding actions, this is not done by the person having and exerting any optional or self-governing power, to conjoin some motives and actions, and separate others; but that it comes to pass, either absolutely by chance, or else in consequence of some such law or established relation among motives, that in certain circumstances some of them should have effect in point of action, and not others; in such a manner, however, as to exclude any liberty in the agent. The former supposition, of absolute chance, is easily shewn to be false, and even absurd: the latter appears more plausible, and even analogous to what actually takes place in the relation of evidence and belief.

With respect to this relation, we certainly have no choice, liberty, or self-governing power: the force or influence of evidence is absolute and irresistible, and our belief is completely determined by it. Yet, in many cases, evidence of various kinds

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kinds has no influence or effect in point of belief; or, in other words, is not conjoined with its usual and proper effect, but plainly separated from it; as, for example, testimony in opposition to distinct memory, or to immediate perception, or to mathematical demonstration.

Some vague and confused notion of such a kind of absolute irresistible influence of motives in point of voluntary action seems to have been adopted by Metaphysicians, and is implied in the persuasion, that the strongest of opposite motives will not only prevail, but have its full effect, as if unopposed; for this want of effect in the supposed weaker opposing motives is just the *separation* of them from their proper effects or actions; about which occasional separation, in contradistinction to the *constant conjunction*, or uniform influence and effect of physical causes, I undertake to reason strictly by necessary consequences.

My next step was to trace the strictly necessary consequences of the supposition  
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of the absolute irresistible force of motives separable from their respective actions, and without any self-governing power in the person, by which he might conjoin or separate them at his discretion.

I soon found that even this supposition implied necessary consequences with respect to motives and actions, which, if not strictly speaking absurd and impossible, were at least so extravagantly and ridiculously false, that I could not suppose that any the most arrogant assertors of the doctrine of Necessity would admit them, or think it necessary even to put them to the test of experiment.

I was at first, I must own, a little surprised to find, that the corresponding inferences with respect to physical causes and effects from the same principles, to wit, the want of self-governing power in the subject, and the irresistible influence of causes not constantly conjoined with their effects, seemed to be true as matters of fact, and appeared even so familiar and well known, that there could

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could be no occasion to try them experimentally.

I began even to suspect that there must be some error in my reasoning, that led to conclusions seemingly true from a principle that I knew to be false: for I had found ample evidence before, that the circumstance of constant conjunction was a part of the relation of cause and effect in physics.

On further examination, I soon found on what this unlooked-for coincidence depended. My inferences, tho' they were the truth, and nothing but the truth, were not the whole truth, with respect to the result in the cases of physical cause and effect. They were true as being strictly necessary inferences from what was true in that relation, and in the peculiar supposition with respect to it which I was considering; namely, the want of self-governing power in the subject, and the absolute force of the causes applied, without regard to the constancy or the inconstancy of the conjunction of them with their effects.

They were not the whole truth, because there was not included in the premises, or particular supposition, whence they were deduced, that circumstance of the constant conjunction of cause and effect, which is really part of this relation. The same inferences were false with respect to motives and actions, although they proceeded on the principle of the separability of these, which is true; and on the supposition that a motive will have its full effect when opposed only by one weaker than itself, which has been generally admitted; because they were strictly necessary inferences from principles that are false; to wit, the want of self-governing power in the subject, and the absolute irresistible force of the motives or causes applied. And they appear extravagant and ridiculous, not to the vulgar only, but to Metaphysicians, who assert those very principles from which they are fairly deduced; because they are inconsistent with our most familiar knowledge of human nature, and with principles or laws of human thought, which philosophers, whatever they may pretend, cannot



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cannot alter either in themselves or in others.

The *Dilemma* requisite for my demonstration was now complete, and independent of all appeals to consciousness: for the result, on either of the only two possible suppositions with respect to the relation of motive and action, excluding self-governing power in the person, might easily be brought to the test of open unequivocal experiment, and compared or contrasted with the result in the corresponding cases of the relation of physical causes applied to lifeless bodies.

The relation of motive and action must be such, that they are either constantly or not constantly conjoined. But the principle of the absolute irresistible force of motives, or the want of self-governing power in the person, implies, by necessary inferences, on either of those suppositions with respect to motives, conclusions that are false or absurd. Therefore this principle, from which, along with a true one, false conclusions are deduced, must itself be false.

In tracing the necessary inferences from that principle, first on the one and then on the other supposition with respect to the relation of motive and action, I have been obliged to employ mathematical reasoning. This on a metaphysical subject must appear extraordinary at least, if not absurd. Some have objected to my reasoning because it was mathematical; others because it was not. It may fairly be presumed, that both objections cannot be well founded.

Having no ambition to dispute about a word, and having, in the course of my Essay, expressed very fully my sentiments with respect to the nature and peculiar advantages of mathematical demonstration, and having given my reasons for thinking that my argument is essentially of that kind, I need not here enter on any controversy about it. My application of mathematical reasoning is not so new, nor so singular, as may at first be thought; and even that part of it which is really new in kind, and therefore the most liable to suspicion, is so near akin to what is implied in

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in the *Principia* of NEWTON, that not only the coincidence between them is perfect, but his fundamental proposition, the first Corollary from the Three Laws of Motion, is easily resolvable into, or, in other words, demonstrable from, those mathematical principles of the relation of cause and effect in physics which I point out.

This coincidence cannot be accidental; for there is nothing accidental in the connections of mathematical truths: And I hope it will procure for my argument that *attention* from men of science, and that *rigorous examination*, which are all that I ask for it. It certainly has no pretensions to any favour; and I know well, that there are in the world some very acute and some very angry philosophers, from whom it can expect no quarter.

The mathematics which I employ will not, I trust, be unintelligible or difficult to any person, however little used to mathematical reasoning; as every general abstract proposition, and even every expression, which I employ, is fully explained



plained in common language, and minutely illustrated by particular examples from physics. I wish it also to be understood, that I employ mathematics in my Essay merely as an *instrument*, to assist, direct, and regulate the train of thought requisite for my purpose; but by no means as a perfect *machine*, the dexterous management of which may *almost* supersede the operation of thinking; which, if I mistake not, is very nearly the case with a great deal of algebraical calculation, as well as with the rules and operations of common arithmetic.

For the edification of *one* good Mathematician of my acquaintance, who cannot be reconciled to my mathematics, and yet either cannot or will not refute them, I quote the following passage from the writings of one of the greatest Mathematicians that Europe has produced.

*L'esprit qui ne reconnoit le vrai que lorsqu'il en est directement frappé, est bien au-dessous de celui qui fait non seulement le reconnoître de près, mais encore le remarquer*  
et

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*et le pressentir dans le lointain a des caracteres fugitifs. C'est la ce qui distingue principalement l'esprit geometrique, applicable a tout, d'avec l'esprit purement geometre, dont le talent est restreint dans une sphere etroite et bornée. Le seul moyen d'exercer avantageusement l'un et l'autre, et de les faire marcher comme d'un pas egal, est de ne pas borner ses recherches aux seuls objets susceptibles de demonstration; de conserver a l'esprit sa flexibilité, en ne le tenant point toujours courbé vers les lignes et les calculs, et en temperant l'austerité des mathematiques par des etudes moins séveres; de s'accoutumer enfin a passer sans peine de la lumiere au crepuscule.*

D'ALEMBERT, *Elemens de Philosophie* :  
*Melanges, vol. 4. pag. 43.*

The merit, or demerit, of the singular mode of reasoning and illustration which I have employed in ascertaining the difference between the relation of motive and action and that of cause and effect in physics, can be judged of by those only who have carefully perused and impartially considered both my argument and the  
subject

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subject itself. But even from this short account of it, it will be evident to every person, that my Essay must be either a strict demonstration of the point that I undertake to prove, or it must be arrant nonsense; and nonsense of such a strange and extravagant kind, as no mortal ever thought or ever dreamed of before.

There can be no medium; for there are no degrees of necessary connection or necessary truth; nor indeed, strictly speaking, are there any degrees of certainty. It is only of probability that the number of degrees is almost infinite. Mathematical demonstration, or any reasoning assuming the name and form of it, as certainly as Poetry, *Si paullum summo discessit, vergit ad imum.*

It will easily be believed, that no man whatever, and more especially that no man whose fame and fortune depend chiefly on his credit as a man of science, would venture to publish such a work, without taking every possible precaution to be assured that his argument was the demon-



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demonstration which he took it for. And for my own part, I will fairly acknowledge, that, however unworthy I may be, in point of mathematical genius and knowledge, to bear the name of GREGORY, I should yet be very sorry to disgrace my name, by offering, as a strict mathematical demonstration, what was a mere paralogism.

As the precautions which I have taken in this respect have been very extraordinary, and, as I think, very complete; and as, far from being ashamed to have taken them, I should have been much ashamed to have neglected them on such an occasion, I think it proper to mention what they have been.

After considering by myself the argument and illustrations in every point of view, and trying them in every way that I could think of, for more than a twelve-month, without being able to discover any fallacy in them, I ventured to communicate the principle and general tenor of them to a friend, of whose talents and

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knowledge I had, as all who know him have, the highest opinion; who was well accustomed to mathematical, physical, and metaphysical investigations; who had been, and actually was, engaged in some philosophical speculations, very near akin to my own; and whom I knew to be a man of candour, not only on all ordinary subjects in science, but even on this very tender and keenly-controverted point; with respect to which, I believe, he inclined to the *opinion opposite to mine*, the arguments in favour of which, he acknowledged, appeared to him very plausible and strong, and not easily, if at all, to be answered; while yet he owned, that they did not fully command his belief, nor enable him to shake off the common and natural persuasion of the liberty of human actions, especially in so far as related to the principles of morality. He apprehended the nature and force of my mode of reasoning and illustration, at once, when they were first mentioned to him; scarce needing the aid of any reference to NEWTON's *Principia*, which I knew to be quite familiar to him. He seemed to be struck with  
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my view of the subject, and acknowledged that he thought it sound philosophy. I believe, however, his good opinion of it was somewhat shaken when he saw afterwards how far it was to be carried, and how it was to be applied in different supposable cases. Yet though, in the course of the last eight years, I have had frequent occasion to converse with him about it, and to revise with him different parts of the reasoning and illustration, he has never yet given me any objections, either to the validity of the one, or to the aptness and fairness of the other; which I am sure he would have done, if he had discovered any such objections. I am sure likewise that he understands it perfectly, and could carry on the same mode of reasoning himself, if there were occasion; for I have observed repeatedly, that, when I mentioned to him various objections that different persons had made to my Essay, he gave at once the same answers to them that I myself had given, or was to give.

Encouraged by the reception my mode  
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of reasoning met with on this first trial, from one whose judgement and candour I respect very highly, I put in writing the principal part of the argument, and some of the most necessary illustrations of it, which, in the course of the last eight years, I have submitted to the consideration of more than *Thirty* different persons; all of them men of reputed good sense and liberal education, all of them accustomed to scientific researches, either in mathematics, in physics, or in metaphysics, and many of them already of distinguished eminence as men of science, and others of them, from their talents, and the use, which they make of them, very likely soon to become so. Some of these persons have easily apprehended the nature and seen the force of my peculiar mode of reasoning, and have fully acquiesced in my argument, as being the demonstration which I supposed. Others of them have found difficulty in apprehending a mode of reasoning so new to them; and, after considering it attentively for a long time, have suggested to me various objections against it; all of which I have been able easily

easily to answer, I believe to their satisfaction; and certainly in such a way that I should willingly print their objections, with my answers to them, in illustration of my argument. Others of them, who owned they saw no fallacy in my reasoning, and could think of no valid objection to it, have declined giving any decided opinion on such a controversy. And some of them, who fully understood and acquiesced in my mode of reasoning, have taken the trouble of stating to me some such objections as they thought most likely to occur, and to be urged against it. Most of these objections I had foreseen, and was prepared for; and all of them were such as I could easily answer, so as to convert them into illustrations of my own argument.

Next I proceeded to shew the Essay in question to several persons of acknowledged talents and liberal education, and well accustomed to scientific researches, and of whose acuteness in reasoning I had the highest opinion, founded on much experience and intimate acquaintance with them;

them; whom I knew to be keen assertors of the doctrine of Necessity; and who, I was sure, would be very able, and very willing too, both for my sake and for the sake of their favourite system, to point out the fallacy of my argument, if it were fallacious. If MR HUME had been alive, I should have submitted it to his revision, as I have done to that of *every* person of my acquaintance whom I knew or supposed to be admirers of his philosophy. —The circumstances of this mode of revision and trial, and the result of it, have been fully mentioned already (p. clix. of this Introduction), and need not be repeated.

Now, after all these precautions and trials, in the course of which it may be observed, that I have most religiously complied with the golden precept, *Nonum prematur in annum*, it will not, I hope, be thought either very wonderful, or very presumptuous in me, when I offer my argument to the public, as a *Demonstration*, of the same kind, and the same force, with those



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those of pure geometry, and of mechanical philosophy.

Still, however, as I neither arrogate any infallibility to myself, nor suppose it to belong to men who grow north of the Tweed, I was anxious, before I should publish my Essay, to submit it to the revision of some philosophers, whose understandings had been matured by the brighter suns of more favoured regions; and in this view, I could think of none more fit for my purpose than the late DR PRICE, and the living DR PRIESTLY, both of whom I knew had fully considered the subject, and yet remained of diametrically opposite opinions concerning it.

I had formerly had the pleasure of some little personal acquaintance with both these philosophers; and partly on the strength of that acquaintance, but still more in consideration of their being much interested and engaged in scientific pursuits very similar to mine, I took the liberty to send to each of them a copy of my Essay, as soon as it was printed; accompanied  
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with a letter, reminding them of former acquaintance; explaining to them the nature, plan, and result of my investigation; requesting them to peruse it with attention, and to communicate to me any remarks, and particularly any objections to my mode of reasoning, that should occur to them; to all which remarks or objections I promised to pay the utmost regard; so far even as to acknowledge any objection to be valid, and of course to suppress my Essay as unworthy to be published, if I could not completely answer such objection, so as to convert it into an illustration of my own argument, and publish it accordingly along with my own treatise.—This was about Midsummer 1789.

About four months afterwards, I received from DR PRICE a letter, containing several good remarks on my Essay, and expressing his approbation of it, and his acquiescence in my supposed demonstration.—This was just what I expected.

I was not so unreasonable as ever to expect

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pect the same kind of answer and approbation from DR PRIESTLY: for, little as I know of him personally, I was not ignorant of his literary character, and especially of that peculiarity of his mental constitution, which DR PRICE (in his letter to me about my Essay) hath modestly, but emphatically, termed *his insensibility to argument*. Besides, I knew very well that DR PRIESTLY had gone so far in the controversy, that he *could not retract*, being pledged beyond all possibility of redemption, as many others have been, not only in point of understanding, but of veracity, to maintain to the last, right or wrong, that opinion which he had *erroneously professed* to believe. But on this very account, it was the more incumbent on me to give him the fullest and the earliest opportunity of considering and refuting, or rather of preventing, any unjust or erroneous charge, or any improper evidence, from being brought against him and his philosophy. To have failed in this respect, I am sensible, would have been in the highest degree illiberal and dishonour-



able on my part; as I told him in my first letter which accompanied my Essay.

I own, too, that I fully expected that he would peruse my Essay, and state his objections to it; and any feeble or uncandid objections from him would have been much more gratifying to me, and a better test of the validity of my reasoning, than his approbation and acquiescence would have been.—It did not occur to me that DR PRIESTLY would have fought, or could have found, an expedient, to avoid either acknowledging the validity of my argument, or stating his objections to it. But such an expedient he hath found; and *valeat quantum valere possit*.—How I have acted, and indeed how I have thought, with respect to DR PRIESTLY, on this occasion, and what use he hath made of the opportunity afforded him, will sufficiently appear from the following specimen, the chief and concluding part of our correspondence.

TO

TO DR PRIESTLY.

"S I R,

You will remember, I presume, that, about two years ago, I sent you a copy of my Essay on the Difference between the Relation of Motive and Action and that of Cause and Effect in Physics; on which Essay I requested you to favour me with your remarks.

I received, in due course, your very polite letter, in which you acknowledge the receipt of my Essay, and of my letter that accompanied it; and express your regret that it had not come to your hands during your discussion of the doctrine of Necessity; and mention the many important literary occupations in which you were at that time engaged, and your doubts of your having leisure, in the course of that

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year,

year, or before the time at which, as I told you, I meant to publish my Essay, to give sufficient attention to a subject on which you had long ceased to read or to think; or, as you were pleased to say, to do justice to such a work as mine; but at the same time gave me hopes, that, if you found leisure to peruse it, you would communicate to me any remarks on it that should occur to you, and appear to you to be of importance.

I was in no hurry to publish my Essay; and I trusted that you would have curiosity enough to look into it; and, if you did, I was sure you would find at least one important particular in it, which would deserve your attention, and appear to you to require an immediate and explicit answer.

About four months afterwards, I received a letter from your friend MR COOPER, in which he informed me, that you, not having leisure to fulfil the request of my letter, had sent my Essay to him, and had begged of him to peruse it, and to make his



his remarks on it; and he added, that he had perused it, and understood the general nature of the arguments, and did not apprehend that he should have occasion to occupy much time in expressing the objections that occurred to him.

This letter I answered in the beginning of November 1789; thanking MR COOPER for the trouble he had taken, and for his obliging offer and intention; and assuring him, that I should pay all possible regard to his observations.

Having heard nothing more from MR COOPER in the course of six months, and suspecting that my former letter had never reached him, I wrote to him again, (June 1. 1790.), to the same purpose as before. In answer to this, I received from him a second letter, in which he acknowledges having received my former letter, and mentioned various satisfactory reasons for his delay in sending me his remarks on my treatise, and repeated his promise of sending me his remarks in the course of a few months.

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Twelve months and more are now elapsed, and yet I have heard nothing either from him or you.

It would be needless, and indelicate, to importune Mr COOPER any more on such a subject. He has read my Essay, and understood it; he must know perfectly whether any valid objections against it have occurred to him; and from the very peculiar nature of my reasoning on the one hand, and the tenor of his letters on the other, I cannot doubt, that if any objections had occurred to him, which he himself thought valid, or decently tenable, he would have communicated them to me.

If I were sure that you were as well acquainted with my Essay as he is, I should have spared both you and myself the trouble of this letter. But as I suspect you have not read my Essay, and are not in the least aware of some things in it which it behoves you much to know, I take the liberty once more to call your attention to it; and I think it better to do so before it  
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be published, than after; that you may have an opportunity, either of obviating and preventing any unfavourable remarks or conclusions with respect to yourself and your philosophy, which it may contain; or else of being prepared to answer and refute them, as soon as they come forth.

You will see, if you peruse my Essay, what I think I told you in my former letter, that my reasoning is, as I conceive, strictly speaking *demonstrative*.

Every demonstration, as I presume you well know, must consist of two parts, which alone are essential to it. These parts are, first, certain ultimate principles, which are clearly perceived as self-evident necessary truths, and are called *Axioms*; secondly, certain necessary inferences deduced, according to the strict rules of logic, from such axioms, and some hypotheses, or cases put.

These two essential parts of demonstration you will find in my argument. If it  
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be just, it is conclusive, as being the highest kind of evidence which human reason knows. If it be not just, it must be nonsense; and it may easily be detected, by shewing the error, if there be any error, in the axiom assumed, or in the logical inference from it and the case put: the former being considered as the *Major* and the latter as the *Minor* proposition of a regular syllogism. Into such syllogisms the whole of my demonstrative reasoning may easily be resolved.

But though I have made many trials, and have met with many persons who were unwilling to admit my conclusion, and eager to evade my argument, I have as yet found no person who *would* deny my axioms, or who *could* point out any error or fallacy in my inferences from them.

My demonstration is indirect, or *ad falsum et absurdum*. The principle with respect to the motives and actions of men, from which I undertake to reason, by necessary consequences, to conclusions that  
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are either intuitively absurd, or experimentally false, you will find to be the very same that you, and MR HUME, and many others, have been accustomed to assert under the name of the Doctrine of Necessity; to wit, that the relation of motive and action is either precisely or very nearly the same with that of cause and effect in physics; at least that there is no liberty, or independent activity, or self-governing power, in a living person, any more than in a lifeless body; and that the influence or force of motives is absolute and irresistible, like that of physical causes.

The inferences which I have deduced from this principle, as necessary consequences, are not only experimentally true, but familiar and well known, with respect to physical causes and effects in lifeless bodies; and I am convinced that you, or any person of competent judgement and knowledge, would think very unfavourably of the veracity, as well as of the understanding, of any man who should doubt, or profess to doubt of them, in the case of

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physical causes applied to lifeless bodies; as, for example, in the instance of equal weights put into the opposite scales of a balance; which is your common and favourite illustration.

All my inferences are of the same kind with the one relating to the result in that instance; and most of them may be tried experimentally with a balance, and the rest of them with a billiard-ball, or a stone, or with any other lifeless body, as well as with a living person. They all differ from the inference respecting the case of a person under the influence of two equal and opposite motives at the same time, in this particular only, that they admit of no appeals to consciousness, and that they exclude all arbitrary hypotheses to account for the result not being found experimentally the same in living persons and in lifeless bodies. Such appeals, and such hypotheses, you well know, are always ready to account for the failure of the inference in the case of equal opposite motives, the ass between two bundles of hay, &c.

After



After the utmost attention that I have given to this subject for many years, my inferences still appear to me as they did at first, strictly necessary consequences of the principle from which I have deduced them; and they have appeared so to many other persons, well qualified to judge of them, who, at my desire, have taken the trouble to examine them with care. They have appeared so to your friend the late DR PRICE, to whom I sent a copy of my Essay at the same time that I sent one to you; and from whom I received, about four months after, a letter, containing several remarks on my argument; which remarks convinced me that he had considered it with attention, and had understood it perfectly; and expressing, in the most explicit terms, his acquiescence in the validity of my demonstration.

Such are the reasons I have for thinking my argument just and conclusive; but I have uniformly found hitherto, what I take to be unparalleled in the annals of science, and not to be accounted for but on one very unfavourable supposition,

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that those who assert most strongly their belief of that principle from which I reason, perceive intuitively, that the inferences deduced from it are false; though they are evidently possible, and though the corresponding inferences from the same principle, with respect to similar cases of the application of physical causes to lifeless bodies, are generally known, and are by themselves acknowledged to be true; and though they can point out no error in the demonstration by which they were deduced from, or shewn to be necessarily implied in, that principle which they professed to believe.

How is this to be accounted for? Do you think it *can* be accounted for consistently with the supposition of sincerity and veracity in those who act in such a manner? Would *you* act in such a manner? What would you think of me if I were to do so?

As I wish to be fully understood on this point, and yet should be sorry to give needless offence to any individual, or to  
any

any set of men, I shall suppose myself in the embarrassing and uncreditable situation of denying the necessary consequences of a principle which I had formally and strongly asserted; and I shall take as the subject of my supposed belief a sophism which no body now maintains, but which not one in ten thousand of mankind can detect, and which, like the doctrine of Necessity, I conceive to be repugnant to the indefeasible laws of human thought, and therefore incredible, even though it could not be refuted.

I shall suppose, that at an early period of life, when my reason was weak, and my credulity and vanity strong, I had met with the ancient paradox, that *Achilles*, though swift of foot, could *never* overtake an old man, who went but half as fast as he did, and was but a short distance before him; for that while *Achilles* went that distance, the old man would go the half of it, and while *Achilles* went the half, the old man would go the quarter of that distance; and so forth; so as to be still before him.



I shall suppose, that I had neither understanding enough to detect the sophism, nor knowledge enough of language to perceive the inaccuracy of the expression on which it depended; and that I had either so little mathematics, or so much metaphysics, as not to understand, nor be capable of learning, how to sum up an infinite series; and that I boldly professed, that I was convinced by that argument, and declared that I did not believe that *Achilles* could ever overtake the old man; that I formally renounced the vulgar notions and belief of motion, and time, and space, and expressed great contempt for the understanding, and some distrust of the veracity, of ordinary men who professed to believe in such things; just as the assertors of the doctrine of Necessity have done with respect to those who maintained the liberty of human actions.

I shall suppose, that I had proceeded in this style for many years, bidding defiance to all arguments against my system, and fancying myself a very great philosopher,

pher, and getting many disciples to adopt and to maintain my doctrine; just as the assertors of the doctrine of Necessity have done.

I shall suppose, that, with all these professions, my conduct, even in cases relating to motion, was precisely the same with that of men who believed, or professed to believe, in motion, and time, and space; that I was accustomed to walk and ride like other men, and, when I did so, to overtake those who went slower, and to be overtaken by those who went faster than I did; in short, that I always acted as much like other men as the assertors of the doctrine of Necessity do; and that, when any questions were put to me about this inconsistency between my professions and my actual conduct, I gave the inquirers plenty of words, but not very intelligible, and still less satisfactory to them; just as the assertors of Necessity do to all inquirers about their faith and their actions.

I shall suppose, that at last some well-meaning

meaning plain man undertook, not only to shew the error of my doctrine, but to prove that I had never believed it; just as I have done with respect to the assertors of the doctrine of Necessity.

I shall suppose, that the plain man proceeded as follows: "You say very rightly, that while *Achilles* went the distance which was at first between him and the old man, the latter would go half that distance, and be still before him; and that while *Achilles* went this distance, the half of the original distance between them, the old man would go the half of it, so as to be still before him: Consider then where *Achilles* would be with respect to the old man, when he (*Achilles*) had gone double the original distance, and when the old man, consequently, had gone half as far; that is, had gone a distance equal to that originally between him and *Achilles*."

I shall suppose, that whenever this was stated to me, I became very angry; that I would neither admit the obvious conclusion,



sion, nor give up my doctrine, nor shew any error in the reasoning; but declared, in general, that it was not applicable to the subject, and that it was treating me like a child, or an idiot, to propose such an argument to me; just as some very zealous assertors of your doctrine have done with respect to my argument against it.—

Truth, it has been said, is nothing but consistency; which is a doctrine, or rather a paradox, that I do not choose to maintain. But you and every person must acknowledge, that consistency is one of the chief tests of truth: whatever is consistent with itself, and with known truths, is generally held to be true; whatever is found inconsistent with itself, and with known truths, is always held to be false. This indeed, as I presume you know, is the very test that MR HUME, whose system you have so zealously adopted, proposes for the truth of the doctrine of Necessity; and I acknowledge it to be a fair one.

With equal certainty I hold, as I believe all mankind do, consistency to be a good test of veracity; and, at least, inconsistency is always held as complete evidence of falsehood. The useful art of cross-examining witnesses depends on this principle. If you and I were examined as witnesses in a court of justice, and after swearing positively to any fact, should fall into inconsistencies with respect to it, (for example, as to the necessary relations of time, place, or quantity, connected with it), and should deliberately persist in such inconsistencies, we should stand convicted of perjury.

Nor is the case different, nor has it ever been supposed to be different, in science. If it were possible for men *bona fide* to deny the necessary consequences of a principle which they believed, (when such consequences were shewn to be implied in it), demonstration would be impossible, a syllogism would be a kind of absurdity, and the science of Logic as arrant an imposition on mankind as Magic or judicial Astrology.

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The only use that I know of what is commonly called Logic, I mean the analysis and whole doctrine of Syllogism, is, to enable us to detect any error or fallacy in a strict argument or supposed demonstration. If you can do so with respect to mine, you will find me still ready to acknowledge your superiority in reasoning, to thank you for the very great favour you do me, and to suppress my work. If you cannot find any error in my reasoning, I must expect of you, as a man of sense and candour, that you will admit my inferences, I mean as necessary consequences of your own principle; which consequences you expect to find true upon trial; and that you will agree to try them experimentally, and to abide by the result.

I should be very sorry to do you any injustice, or even to fail in that respect to you, to which your character, and your zeal and activity in the pursuits of physical science, well intitle you. But it is fair, and it is necessary, on my part, to warn you, that, by the publication of my Essay,



you will find yourself loudly called upon to vindicate your character, not merely in point of understanding as a philosopher, but in point of probity and veracity as a man.—My Essay, as you will perceive by the tenor of it, is given, not merely as a demonstration that the doctrine of Necessity is erroneous and absurd, but as a proof, (as complete and decisive as ever was or ever can be given of *mala fides* in any case), that few, if any, of those who asserted it had really believed it; and consequently that most or all of the assertors of it had been guilty of a most shameful imposition on mankind.

You cannot be indifferent to such a charge. You cannot fail to know, that not to answer and retute it, is to acquiesce in it. It cannot be doubted, that in the course of two years you might easily have found time to consider such a work as mine, and either to discover the error, if there be any error, in my inferences from your own principle, or to perceive that they are just inferences, fit to be believed,

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ved, and likely to be found true on experiment.

I shall mention in my Introduction, of which an abstract or perhaps a complete copy of this letter will form a principal part, what extraordinary precautions I have taken to be assured that my reasoning is valid and conclusive, and what care I have taken to avoid doing injustice to those whose system I undertake to refute, and particularly to you.

My Essay will be published (unless you can shew me that it is erroneous) in the beginning of winter: any remarks or objections that you or your friend MR COOPER shall favour me with, on or before the first of September, shall have a place, either in the Introduction or in the Appendix to my Essay."

EDINBURGH, }  
June 24. 1791. }

The first of September, and the last of December too, are now past, and I have  
received

cclxxxvi DR PRIESTLY's

received no remarks on my Essay, and no objections to my argument, either from DR PRIESTLY or from MR COOPER; but I received from the former a letter, of which the following is a copy.

### DR PRIESTLY's ANSWER.

"S I R,

I AM truly concerned that you should have had occasion to take the trouble of writing so long a letter as yours of the 24th instant. MR COOPER should not certainly have promised to write to you on the subject of your book, without doing it; but I cannot absolutely condemn him unheard. I shall immediately transmit to him this letter of yours; and I hope it will induce him to send you the remarks he promised. But as many things may render this uncertain, I would advise you to publish your book  
without



without any further delay. Your attention to us has been greater than we were entitled to.

Two of my friends, in my opinion good judges of the subject, and who have read your book, express no less confidence in the weakness of your argument, than you do in the strength of it. But let the public see it, and they will form their own judgment, both of *it*, and of our conduct with respect to the author.

To me, I fairly own, your proposal appears in the same light as to re-examine the doctrine of Transubstantiation, or to defend a proposition in the first book of EUCLID, in the demonstration of which a person should now pretend that he had discovered a fallacy. In either of these cases, would you think it worth your while, if you had any important pursuit in hand, to give much of your time to them?

As to your calling upon me to vindicate my "probity and veracity," and to  
defend

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defend myself from the charge of "*mala fides*," and of being "guilty of a most shameful imposition on mankind," to which you say "I cannot be indifferent," I do assure you, that I have been so much used to charges of this nature, that I am perfectly so. I am myself satisfied with what I have written on this subject; and I have long been in the habit of making myself easy as to every thing else.

I am,

S I R,

Your very humble servant,

(Signed) J. PRIESTLEY.

BIRM. *June* 30. 1791.

*P. S.* MR COOPER has your book; and as we are at a great distance from each other, I have had no opportunity of looking into it."

ON

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ON this letter I must beg leave to make a few remarks.

In the first place, I must own, that the resemblance, to which DR PRIESTLY alludes so confidently, between the doctrine of Transubstantiation and the popular persuasion of the liberty of human actions, does not strike me; and one great difference between them is very obvious; namely, that the latter is general, and natural, and, I believe, indefeasible among mankind; while the former is found only in some part of them; and even among these is not natural, but produced by artificial instruction, and appears repugnant to their senses and to their reason, and rests entirely on the authority of Priests and Theologians, and on the peculiar meaning which they give to a passage of the Holy Scripture; — just like DR PRIESTLY's own Theological opinions and discoveries.

I am nowise qualified nor disposed to judge, whether the doctrine of Transubstantiation, or DR PRIESTLY's peculiar  
o o doctrines



doctrines in Theology, be most rational, and most conducive to the temporal and to the eternal interests of mankind. But I am very sure that the doctrine of Transubstantiation has nothing to do with the philosophical question that I have been considering; and I am equally sure, that it is not only very indecent, but highly imprudent, for DR PRIESTLY to allude to it, or to any other religious opinion, however erroneous he may think it, as a subject of contempt and derision. He knows not how soon he himself may be maintaining that very doctrine of Transubstantiation, as zealously as ever he did that of Necessity. Many stranger things have happened, and happen every day, without occasioning much surprise among men of sense and observation. The lucky *discovery* of two or three new meanings to as many old texts would bring it about at once, by giving him a new creed: and it is well known, that though his creed be always odd, and always scanty, and always changing, yet it is always strong: *Quicquid credit, valde credit.*

In

## INTRODUCTION. ccxci

In the second place, I must own, that I am equally at a loss to perceive that resemblance, to which he alludes, between the doctrine of Necessity and a proposition in the first book of EUCLID; and I perceive very plainly some important differences between them. One of the most obvious of these differences, which I should think DR PRIESTLY, whether he understands the difference between demonstrative and inductive reasoning or not, might easily have perceived, is, that *all* Mathematicians have uniformly agreed, and have even found it impossible to differ, in their opinions with respect to the propositions and the arguments in EUCLID; while, on the contrary, Metaphysicians, seemingly equally well qualified, both by nature and education, to judge of the subject of their reasonings, have very generally differed, and have even found it impossible to agree, in their opinions about the doctrine of Necessity.—Was HOBBS better qualified to judge of it, or more worthy of credit, than JOHN LOCKE? LEIBNITZ than KING? MR HUME than DR REID? DR PRIESTLY than his friend DR PRICE?

Have Father BUFFIER, or Father BOSCOVICH, or M. D'ALEMBERT, acquiesced in the doctrine of Necessity? Have even the majority of philosophers admitted it? Did SOCRATES, or PLATO, or ARISTOTLE, admit it? Are philosophers better qualified to judge of it than mankind in general, who uniformly reject it with contempt?

“In a question about hay, there is no appeal from the judgement of my horse,” was the answer of a learned judge to an impudent rogue of an innkeeper, who would maintain that his hay was good, though the horse would not eat it. I think the argument a good one; and on the same principle I conceive, that, in a question about *human thought*, there lies no appeal from the general voice of mankind.

They will listen with attention and instruction to one who will explain to them the structure of the eye, the nature and uses of its various humours, and the formation of an inverted image on the *retina*; and



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and they will acknowledge, that the person who investigated these things was really a philosopher: but if their instructor should proceed to tell them, that, when they looked at the objects around them, they saw only the inverted images of them on the bottoms of their own eyes; or that by means of these inverted images they saw the real objects, but inverted; and then, by a process of reasoning, judged them to be erect, like DES CARTES's blind man with his cross sticks; they would soon discover that he was playing the fool. And if he should venture to assert that such was the case with himself, that he *saw* those images in the bottom of his own eye, and *saw* all things inverted, and only inferred or judged that they were erect, they would naturally, and I think very rightly, conclude, that he was playing the knave, and was saying the thing that was not.—So easy it is, even in cases in which they appear to be most intimately blended, to distinguish between physical and metaphysical science, and to judge of each of them by its own proper test.

DR

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DR PRIESTLY, in his letter to me now under consideration, hath very candidly mentioned, that he is "much used to charges of *mala fides*, and gross imposition on mankind," &c. This is indeed a great misfortune, and one of a very peculiar kind; but it is lucky, that by being accustomed to it, he is able to make so light of it. *Leve fit quod bene fertur onus.*

I cannot wonder at any thing so natural as his having had such charges brought against him; for indeed I think it scarce possible he should have escaped them: but I wonder greatly that he never discovered, nor thought of inquiring, how that came to pass. They have not in general been brought against other philosophers: they are not legally, nor even by the courtesy of England, attached to the state and degree of Philosopher; like the appellation of Right Honourable, which we give to a Peer, or Right Reverend, which we give to a Bishop. No such suspicions were ever entertained of SIR ISAAC NEWTON, tho' he lived more than fourscore years in the world, and dealt much in discoveries. No  
such

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such charges have been brought against DR REID, though he has lived almost as long, and has dealt much in metaphysics. But all philosophers who will insist on making discoveries in metaphysics, and maintaining sophisms, (as for example that of *Achilles* and the old man), which mankind in general find incredible, though perhaps they are not able to detect them, must expect to meet with such charges, and cannot escape them.

A person must be peculiarly unfortunate, indeed, whose probity and veracity are often and generally called in question without some reason. For my own part, I doubt whether this ever happens: hence the real value of good character. DR PRIESTLY, I am sure, notwithstanding that perfect indifference which he expresses to such charges when brought against himself, would not rely much on the probity or veracity of a person who was much accustomed to be charged with the want of them; nor on the courage of a soldier, nor on the chastity of a woman, which had often been called in question  
by



by those who had opportunities of judging of them.

In Scotland, we are accustomed to pay still greater, some people will perhaps think too great, regard to the circumstance of generally bad or suspicious character: we call it *habit and repute*; and our lawyers, an uncharitable set of men, not a jot better than their brethren of Westminster-Hall, hold, that the proof of a single act of theft, by a man who was habit and repute a thief, is a kind of proof, that his general character was the result of his actual conduct. Our law will even hang a person of such a character for a single act of theft, which in another person, not of such character, would not be deemed a capital offence. This may be thought carrying the principle too far: for certainly, in every syllogism whereof the conclusion is hanging, we ought to be very cautious as to the premises. But admitting it to be wrong, the reverse of this wrong will not be right: a man will not surely be exempted from the obligation of vindicating his character, nor will he

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he be entitled to presume upon it as firmly established, because it had often been called in question before; when complete proof of the charges brought against it could not be obtained, or had not been produced. Suspicions may be perfectly just, though they cannot be established by proof; and many persons have been acquitted on trial merely for want of evidence; that is, not because they were proved innocent, but only because they were not proved guilty. Every such suspicion, and every such acquittal, must be considered as weighing much against the person on every subsequent accusation. If the illustrious MR BARRINGTON, the last time that he appeared at the bar, had told the Court, that he was so much accustomed to such charges as those brought against him, that he was perfectly indifferent to them; whatever credit might have been given to his professions of indifference, I do not think the evidence against him would have been in the least weakened; nor would that ingenious person have escaped the trouble and the

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vexation

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vexation of a voyage to the southern hemisphere.

If it were not so particularly his own case, I am convinced that DR PRIESTLY would agree with me, and with the rest of mankind, in thinking, that the character of a philosopher, and of every good man, like the wife of *Cesar*, ought not even to be suspected; and that there must be something wrong in the conduct of a person, when suspicion falls upon his character.

As to what DR PRIESTLY says of his being himself satisfied with what he has written on this subject; he has given so many unequivocal proofs of his being himself satisfied with what he has written on every subject; or, more properly speaking, his whole life and writings have been so entire and uniform a proof of his enjoying that highest of all satisfactions, the being satisfied with himself; that it would be impossible, as well as uncandid, to call in question his sincerity in that short and pithy declaration. I shall therefore  
only



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only beg leave to recall to his memory the admonition of the Apostle, "Let him that thinketh he standeth, take heed lest he fall."

I have good reason to think, that he will find more difficulty than he is aware of in reconciling his professions with his actual conduct; and his ready admission, and bold assertion, of *every* consequence of the doctrine of Necessity, however absurd, that admitted of appeals to consciousness, with his immediate and obstinate rejection (which I am confident will be the case) of *every necessary* consequence of it that admits of no such appeal, and must be decided by open unequivocal experiment. But that is entirely his business, and not mine. It is no part of my undertaking to make DR PRIESTLY, or any of those who have maintained the same doctrine that he has done, confess that they had asserted with arrogance a doctrine which they did not believe; nor is it of any consequence in science to do so: but it is of great consequence in science, chiefly with a view to prevent the conti-

nuance or repetition of the same improper conduct in others, to prove that such has been the case. And this I undertake to *demonstrate*.

AS DR PRIESTLY is more accustomed to metaphysical than to mathematical speculations, it will not probably appear to him a paradox, or even a matter of doubt, when I say, that what we call *Demonstration*, even in geometry, is not, strictly speaking, a proof of what any thing *is*, but only a full and clear exposition of what every man of sound judgement *must think and believe* with respect to it. If the thoughts and belief of mankind with respect to the perception of necessary truth in the axioms, and with respect to necessary connection in every inference from them and the several hypotheses, or cases put, in the propositions of geometry, were erroneous, every proposition in mathematics would be false : And if we could think our faculties in those respects deceitful, we should reasonably, and indeed necessarily, doubt of every proposition in mathematics, however clearly demonstrated. This,

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## INTRODUCTION. ccci

I presume, is very generally done by those who study geometry, till they see and understand the demonstration of the several propositions which they are taught : but then doubt instantly becomes impossible. No person *can* doubt of a geometrical axiom, or of the validity of a regular syllogism : No person *dare* pretend to doubt of either of these things ; for if he did, he would instantly stand convicted of falsehood. When he admits these two things at each step of the demonstration, he at last necessarily admits that proposition which was to be proved ; but which, when stated by itself, he might reasonably have doubted or denied.

Such is mathematical demonstration ; and such is the mode of reasoning which I have employed in my Essay. DR. PRIESTLY *might* have understood from my first letter, though it was expressed in the most cautious and delicate terms, and he *must* have understood, if he had read my book, which he received along with that letter, that my Essay contained the most complete and rigorous proof of those charges



charges of *mala fides* and gross imposition, to which he owns he had been much accustomed. But much as he was accustomed to those charges, he certainly could not be accustomed to that kind of proof of them; for it had never been brought, nor attempted, before: and much as he might despise the charges when unsupported by proof, he could not despise that kind of proof of them; for he must have known that it is the highest kind of evidence that human reason has yet discovered, or can conceive; and that, if it could not be pointedly refuted, by shewing precisely the error of it, the conclusion must remain established for ever.

There is reason to think, that DR PRIESTLY has little taste for mathematical reasoning, or indeed for strict reasoning of any kind; I mean, reasoning by necessary consequences; from which I infer, that he understands but little of such reasoning. But I cannot suppose him so ignorant, or so incapable of it, as not to perceive a simple necessary truth, or a strict logical inference, when any such  
are

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are pointed out to him : for that would be to suppose him incapable of learning even the first book of EUCLID. As little can I suppose him of so strange and perverse a disposition, as to refuse his assent to such a self-evident truth, or such a logical inference, when he perceives and understands them. Nor can I doubt, that, in every case where he met with that kind of reasoning, he would perceive the infinite superiority of it to that vague, declamatory, and analogical reasoning, which has generally been employed by Metaphysicians, and which he himself hath so liberally and so uniformly employed, in treating of the doctrine of Necessity. It is abundantly evident, and will not, I presume, be denied by DR PRIESTLY himself, that he, and that all of them, in treating of it, have attended *solely* to the instances that favoured, or seemed to favour, or might be construed to favour, their opinion; that is, to instances of the analogy between the relation of motive and action and that of cause and effect in physics; overlooking or denying all instances, though much more numerous, as well as  
more

more important in point of reasoning, (in which indeed they are *conclusive*), that were adverse to their system, and to that analogy.

Trusting to his having that degree of understanding and knowledge, of which it would have been unreasonable, as well as uncandid, nay almost impossible, to suppose him destitute, and being perfectly indifferent whether he acted candidly or otherwise in his remarks on my argument, I was anxious, for reasons very obvious and already mentioned, that DR PRIESTLY should peruse my Essay, and give me his observations on it; or at least that he should have an opportunity of doing so. He has had that opportunity, and has it still, and may make use of it or not as he pleases, and in whatever manner he thinks best. I understand from his letter, that he will not make any remarks on my argument, or offer any objections against it. But I am at a loss to know, whether I am to understand from the postscript, that he had *never* read it, or only that he had not read, nor had an opportunity of reading



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reading it, after receiving my second letter. He certainly had an opportunity of reading the book, when he first received it, and before he sent it to MR COOPER.

This circumstance I take notice of the more particularly, because I conceive, as I think every person must do who shall peruse my Essay with attention, that DR PRIESTLY may have very different reasons, besides want of opportunity to read my Essay, and confidence in his own opinions, and the resemblance between the popular notion of liberty and the doctrine of Transubstantiation, and between the doctrine of Necessity and the propositions in the first book of EUCLID, and reasons much more cogent than any of these, for refusing to make any remarks on my argument, and either to admit it to be valid, or fairly to state his objections to it, and to shew in what respects he thinks it erroneous.

These singular and very cogent reasons may, I think, be pretty well guessed at

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from

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from what has been already mentioned of the general nature of my reasoning, of the extraordinary precautions that I have taken to be assured that it is valid, and of the result of many trials made, by submitting it to the revision of several different persons, who were as unwilling as he could be to acknowledge the validity of the argument, and to admit the conclusion; and they *must* be fully understood at once, from considering the infinite difference between my mode of reasoning by mathematical necessary consequences, and the vague, analogical, and hypothetical reasoning, which has been generally employed by those who maintain the doctrine of Necessity; of which a good specimen has already (pages cvi. cvii.) been quoted from the writing of DR PRIESTLY.

Supposing then, that, without *reading* my Essay, he had just dipped into it, or that, directed by the table of contents at the beginning, he had read the 9th, 10th, 12th, 15th, or 21st section of it, or any other the title of which might peculiarly  
excite

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excite his curiosity, and that he discovered the nature of the reasoning and illustration employed in it, and perceived that neither arbitrary hypotheses, nor appeals to consciousness, nor ambiguous words, could be employed to any advantage in answer to it, and that he did not immediately nor clearly perceive any satisfactory refutation of it; what could reasonably be expected of him? What could he do but just what he has done?—namely, express his confidence in his own opinion, and his contempt for every thing that could be urged against it, and, on one pretence or another, refuse to enter again on the argument.

With respect to his two friends, whom he thought good judges of the subject of my book, and to whom it should seem he had given it to read, choosing to read and judge of it by proxy, rather than in person, and who have so pragmatically expressed their confidence in the weakness of my argument; their conduct requires some animadversion.



Supposing them to have read and to have understood my Essay, they must have known, both from the tenor of it, and also from DR PRIESTLY's information, for what purpose, and in what a fair and honourable manner, I had submitted it to his revision; and if they had really discovered any error or imperfection in my argument, it must have been easy for them to point it out in such a manner as to preclude all possibility of dispute or cavil about it; and it would have been reasonable, and candid, and liberal, in them to have done so. Not to do so, when they thought it was in their power, was unreasonable, uncandid, and illiberal, in the highest degree.

But their conduct in this respect, however reprehensible, cannot appear surprising to any person who considers what manner of men they *must* have been; for it is certain, that we do not gather grapes of thorns, nor figs of thistles; and that men, as well as trees, may be known by their fruits. Though I know no more of these nameless philosophers than just what DR PRIESTLY has mentioned in his letter  
to

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to me, yet, even from that little information, I could judge with confidence, that nothing better was to be expected of them.

They are two of his friends, in his opinion good judges of the subject: this implies that they had adopted and professed to believe his doctrine. It is plain, that he could never regard men as good judges of the subject who differed in opinion from him concerning it, and who reckoned his doctrine not merely erroneous, but absurd and incredible. I am well convinced, that he would not even have thought his friend DR PRICE a good judge of it; for that would be to admit that he himself was not one. But this is not all: DR PRIESTLY has made the admission of the doctrine of Necessity a kind of test of a person's having a real philosophical genius, and has declared, that the opposite opinion is a glaring absurdity.

Now, these things being so, the conduct of the two nameless philosophers,  
supposing

supposing them not to have discovered any error or imperfection in my argument, must appear very natural: for to have acted otherwise, and to have acknowledged that my reasoning was, or at least appeared to them, just and conclusive, would have been, in the first place, to forfeit the esteem, and incur the contempt and reproach, of DR PRIESTLY; in the second place, to acknowledge that they had all been maintaining with arrogance a doctrine which was absurd; and, in the third place, to confess that they were fairly convicted of having asserted a doctrine which they did not believe. This was scarce to be expected of any two men; and certainly not of two Metaphysicians, accustomed to vague reasoning, and endless wrangling, and appeals to consciousness, on all occasions; ignorant that open unequivocal experiment is of higher authority than any hypothesis or system, and that strict mathematical reasoning is, in some cases, a test of the veracity, and even of the most secret thoughts of men; and who perhaps, after all, understood no more of the argument on which they presumed



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sumed to decide so arrogantly, and were no more qualified to judge of it than the *fœtus in utero*.

If the two nameless philosophers, the friends of DR PRIESTLY, or he himself, conceive that I do them any injustice in these remarks, they must know, that there is one, and but one, way for them to vindicate themselves. Let the two philosophers fairly state their objections to my argument, and shew to others that weakness of it which they so confidently said they had perceived; let them point out, if they can, the error of my deduction, by necessary consequences from that principle which I undertake to disprove; let them prevail on their friend DR PRIESTLY, if they can, to peruse their answers to my argument; which it would surely be very uncivil and unkind in him to refuse to two such friends, of whose judgement he had so good an opinion; let them prevail on him to give his *imprimatur* to their answers, by declaring that he thinks them valid and conclusive, which he cannot refuse to do without shewing

shewing that he thinks them nonsense; and, lastly, let them allow me to peruse them, if not before they are printed, at least before they are published, as I have done to them with respect to my Essay; and I engage to peruse them with attention; and either to acknowledge the validity of them, or to point out precisely the errors of them, and to allow such acknowledgement, or such reply of mine, to be printed and published along with their answers; so that every intelligent reader may judge which of us fails, either in point of candour or of good reasoning; for a most grievous defect in one or both of these things there *must* be, either on one side or the other.

I think it right to make the same offer to MR COOPER; whom, from the *identity* of the name, and some other circumstances, I judge to be the *same* person who has lately favoured the world with a volume of Essays, Ethical, Theological, and Political. If I am right in this conjecture, I mean, according to the vulgar notion of personal identity, which I understand Mr

COOPER

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COOPER has *discovered* to be erroneous, he must be very peculiarly pledged indeed to state his objections to my argument. For he had seen and perused my Essay before his volume was published; and, as I understand from the Reviews, for I have not yet seen his work, he has in it maintained the doctrine of Necessity as confidently as any of his great predecessors had done.

I should gladly hope, therefore, that I was mistaken in the opinion which I expressed in my letter to DR PRIESTLY with respect to MR COOPER's reasons for not favouring me with his remarks on my Essay, as at one time he intended, and repeatedly promised to do. I hope he has really thought he perceived some error in my reasoning, and that he will yet take the trouble to point it out to me. I will with much pleasure pay the utmost attention to any of his objections *that relate precisely to my peculiar plan and mode of reasoning*: and this not merely in consideration of his great merit as a Metaphysician, and his *discoveries* in metaphysics, for

r r which



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which kind of discoveries he seems to have an admirable genius, but in hopes that he may be a little more in the secret with respect to the nature and force of mathematical reasoning than the two Birmingham philosophers seem to be.

I think it may be right even to remind him of the following passage in his last letter to me, dated, Lever Hall, near Bolton, Lancash. Sunday, June 6. 1790.

“ I shall again sit down to your work,  
“ and hope to finish within no long time  
“ the observations I had to make on it. You  
“ may depend upon receiving them so  
“ soon as they are finished; and they shall  
“ then be at your option to dispose of as  
“ you please. You mention, that *before*  
“ *winter* you mean to publish your Es-  
“ says: if so, I think I may very well  
“ promise to let you have what I have to  
“ say upon the subject in full time for  
“ your purpose. Should any further ac-  
“ cident, however, prevent my proceed-  
“ ing as I intend, you shall certainly know  
“ in time; because I should be extremely  
“ sorry

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“ sorry to delay a work which I think the  
“ public, as well as myself, will be very  
“ glad to see abroad in the world.”

MR COOPER, I presume, will remember what I mentioned to him very fully, two years ago, concerning *any other* objections that might be made to my argument. Nothing can be easier than to make any number of objections to it by means of ambiguous words, and vague analogical reasoning; but all that can be said or done in this way is but like sounding brass or a tinkling cymbal; and all such objections, far from tending to shake my argument, are to be regarded as acknowledgements, ungracious enough, it must be confessed, that those who make them have no valid objections against it to offer.

These strong charges of *mala fides* in those philosophers who have most confidently asserted their belief of the doctrine of Necessity, are fully implied in the general tenor of my Essay; and have not escaped the observation of those who at my

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request have perused it; some of whom have expressed to me with freedom and candour their disapprobation of them. Their opinion on this point, after due consideration, I have disregarded; because I think it wrong: but it is proper to state the objections to such charges as I have advanced, and my own reasons for not thinking them valid; which may be done very concisely.

The objections I shall give in the very words of one for whose judgement I have the highest respect; and who, of all that have disapproved of my conduct in advancing such charges, is the only one who has given me his reasons for that disapprobation.

“ I think one can hardly be too cautious of denying the *bona fides* of an antagonist in a philosophical dispute. It is so bitter a pill, that it cannot be swallowed without being very well gilded and aromatised. I cannot but agree with you, that assent or belief is not a voluntary act. Neither is seeing when the eyes are open.  
One



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One may voluntarily shut his bodily eyes, and perhaps the eye of his understanding. I confess this is *mala fides*. But as light may be so offensive, that the bodily eye is shut involuntarily; may not something similar happen to the eye of the understanding, when brought to a light too offensive to some favourite prejudice or passion to be endured? —

The want of sincerity, or *bona fides*, in a large body of men respected and respectable, is a very tender place, and cannot be touched with too much delicacy, tho' you were sure of being able to demonstrate it. I am afraid it may be taken as an insult, which even demonstration cannot justify. Your not making the conclusion general, for want of a sufficiently extensive information, will not satisfy; because it seems to extend the conclusion as far as your observation has extended, and because the reasons on which you ground your conclusion seem to extend it to all Fatalists that can draw a conclusion from premises.

If

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If DAVID HUME, or any other person, has charged those who profess to believe men to be free agents, with insincerity, I think they did wrong; and that I should do wrong in following their example.

But setting apart the consideration of *Bienfaisance*, I doubt of the truth of your conclusion. If human reason were perfect, I think you would be better founded. But we are such imperfect creatures, that I fear we are not exempted from the possibility of swallowing contradictions. Could you not prove with equal strength, that all bad men are infidels? yet I believe this not to be true.

I truly think, that a Fatalist, who acted agreeably to his belief, would sit still, like a passenger in a ship, and suffer himself to be carried on by the tide of Fate; and that, when he deliberates, resolves, promises, or chooses, he acts inconsistently with his belief. But such inconsistencies, I fear, are to be found in life; and if men be ever convinced of them, it must be by soothing words and soft arguments, which  
*ludunt*

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*ludunt circum præcordia.* For the force of prejudice, joined with that of provocation, will shut the door against all conviction.

I humbly think, therefore, that it will be proper and becoming to express less confidence in your mathematical reasonings, though I really believe them to be just on the hypothesis you combat. Fatalists will think, that when you put the issue of the controversy solely upon the experiments, you treat them like children. No Fatalist will contend with you upon that footing, nor take it well to be challenged to do so."——

I respect very highly, as I think every person who reads them must do, the candour, and gentleness, and moderation, which appear in these remarks: and I acknowledge that they are acute and ingenious, and that they shew profound knowledge of human nature: but I can by no means acquiesce in them, as either strictly just and conclusive, or even as fairly applicable to my conduct, and my mode  
of



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of reasoning, in advancing, and endeavouring to prove, such severe charges as are now the subject of consideration.

First, with respect to the imperfection of the human faculties, which appears to me to be the chief argument in the preceding remarks, I acknowledge, that we are indeed imperfect creatures in every respect; and in particular that our reason is imperfect. But I can by no means admit, nor do I believe that it has ever yet been maintained by any philosopher, that absolute perfection of human reason is requisite to enable us to perceive and understand necessary consequences, when they are clearly pointed out to us; or, in other words, to understand and acquiesce in logical and mathematical demonstration. The general and well known fact is altogether adverse to such an opinion: for numberless individuals, whose faculties are manifestly imperfect, easily understand, and invariably and irresistibly acquiesce in, such demonstrations. The imperfection of human reason fully accounts for our not perceiving intuitively *all* the necessary consequences

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sequences of an assumed principle, and for the difficulty which most of us find in following a long and complicated train of necessary consequences, such as we meet with in many mathematical demonstrations: but I do not see how it should ever make us admit or swallow contradictions; nor do I believe that such is the fact; and I know that the directly contrary opinion hath always been admitted as an axiom of logic; which axiom is the very foundation of all arguments *ad absurdum*. These have always been held just as valid as any other kind of demonstrations; and have been so much used by Geometers, that it has been estimated that one half of their demonstrations are of that kind. No one surely will maintain, that, on this account, they are to be rejected, or even distrusted; or that men, in consequence of any supposed imperfection in their reason, can both believe those propositions, and the contraries of them, at the same time: for they might have believed the contraries of them till they knew better; this being implied, as I think, in the notion of imperfect reason.

The instance given as parallel to the swallowing of contradictions, namely, the case of a person who believes the truths of revealed religion, and yet acts immorally, is ingeniously selected, and well stated, by the author of the remarks; but it is not by any means a strictly parallel case. There is no doubt *some resemblance*; but the *difference* between them is *infinite*, and plainly consists in this, that a person's moral conduct is voluntary, and depends on himself; but his belief (as the author of the remarks acknowledges) is involuntary, and is determined, not by himself, but by the evidence which is before him. A man may say, *Video meliora, proboque; deteriora sequor*, without being chargeable either with absurdity or falsehood: it may even appear beyond all doubt, from the general tenor of his life and conversation, that he speaks truth; and in this case he will be a fit object of disapprobation, of contempt, of detestation, and of punishment; which otherwise he could not be. On the same principle, a person may be a bad man, without being an infidel; he may believe and tremble, while he acts according to his



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his own passions and his own interest, in violation of the precepts of religion, as well as of morality and of human laws. But there is no principle in human nature by which a person can say with truth, I see and acknowledge what is true, but I believe the contrary of it. Such an assertion would justly be reckoned an absurdity; something not merely false, but impossible and incredible, as being repugnant to an universal law of human thought.

Secondly, with respect to its being wrong to charge men with insincerity in their professions of opinion and belief on such points as I have had occasion to consider, I acknowledge, that it is very wrong to do so *unjustly*; and very foolish to do so, unless the charge can be fully established by clear and decisive evidence: but when this can be done, as I am confident it may be on the subject in question, I see no wrong in it; on the contrary, I think it perfectly right to detect, and to expose to just contempt and reproach, all those who have acted in such a manner. But as

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my opinion and my conduct on this point must be fully understood, both from what has been already said, and from the general tenor of my Essay, I need not enter on any further discussion of it in this place.

Thirdly, with respect to the propriety of endeavouring to gild the bitter pill, that those concerned may swallow it with the less reluctance; I have made no such attempt, because I thought it altogether hopeless. The nature of the pill to be swallowed could not by any means be concealed; and I was sure that none of my *patients* would even endeavour to swallow it. To speak without metaphor, the proof of the charge of *mala fides* results so plainly from my mode of reasoning, that no person who has maintained the doctrine of Necessity as his serious belief can ever acquiesce in my argument, without acknowledging his own *mala fides* in his former assertions; which no person will do.

Their situation in this respect I conceive to be very similar to that of a certain Bishop,

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shop, on another point. This learned Prelate, it is said, fell into a very awkward mistake, the first time he met with asparagus at table; and not knowing how they were to be eaten, began to eat them at the wrong end. One of the company, observing what he was doing, and guessing the reason of it, endeavoured to set him right, by telling him how he ought to eat them. But he, displeased at being found so ridiculously mistaken, and too proud to be set right, declared, that he always eat them that way, and that it was the best way of eating them; and in this profession, which indeed it was not easy to retract, and in the corresponding practice in eating asparagus, it is said he persisted all the days of his life.

Many a tough and tasteless morsel the unlucky Bishop must have chewed; but still he escaped the mortification of being obliged to swallow the bitter pill of acknowledging his own *mala fides* in his first declaration. He even avoided that conclusive evidence of his insincerity, which inconsistency of his actions and his professions



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sions would have afforded: he had the comfort of eating his asparagus in a manner perfectly consistent with that very peculiar system concerning them which he professed to believe.

In this respect I think he had greatly the advantage of the assertors of the doctrine of Necessity; none of whom have ever acted consistently with their own system, nor, I am confident, ever *will* act according to it, in *trying cases*; that is, in cases where the result of the motives applied *must* be different in point of action, according to their doctrine, from what it probably *would* be, according to the notion of liberty, or self-governing power in mankind. The only question that remains with me on this point, and which I was very desirous to determine by fair experiment, (the only way in which it can be determined), is, Whether any of them can *even attempt* to reconcile their actions with their professions of belief, which is, in other words, to refute my supposed demonstration, without affording additional evidence of their own *mala fides*. This,  
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for example, I think every person would do who should deny the truth of any self-evident axiom, or the justness of a regular syllogism, or the fairness and conclusiveness of open unequivocal experiment.—

The author of the remarks himself seems perfectly aware of what I have found experimentally true, that they will not put the issue of the controversy to the test of experiment, and that they are displeased when I propose that test to them : but how he reconciles this conduct with the supposition of *bona fides* on their part, I can by no means conceive.

As to the praise of *circum præcordia ludit*, so justly and emphatically given by PERSIUS to HORACE, I acknowledge it to be a very great, and in many cases a very desirable one. If I were composing a song for a Comic Opera, a task for which I am singularly ill qualified, I should be very anxious to acquire that praise. But I think, in strict scientific reasonings, it *may* be dispensed with, as not being essential to them. And in an attempt to detect pretences and imposture, it *must* be dispensed with, because

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cause it cannot be attained. In this part of my undertaking, therefore, I shall be perfectly contented with the praise, or censure as some may think it, which is given to JUVENAL, *Ardet, inflat apertè, jugulat.*

Lastly, with respect to my not making my unfavourable conclusion general, only for want of sufficiently extensive information, and seeming to extend it as far as my observation has extended, I can see no wrong in either of these particulars. It is a matter of fact, which I cannot alter, and will not falsify, and should in vain attempt to conceal, that *not one* of those who were accustomed to assert the doctrine of Necessity, and who have considered my argument, have either admitted my (supposed) necessary inferences from their own principle, or shewn me any error in the reasoning by which they were deduced from it. It is in all cases unreasonable, and in this it would be uncandid also, to draw a general conclusion from particular premises. I therefore limit my conclusion according to the strictest rules of logic. I  
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do not mean at any time to extend it to *all* men who can draw a conclusion from premises, but to those only who can do so, and yet deny my conclusion, without shewing any error in my reasoning. My unfavourable conclusion never *can* affect those who do either the one or the other of these things. As I think it inconsistent with any competent knowledge of human nature, to admit my inferences from the doctrine of Necessity, as things either true, or probable, and fit to be tried experimentally, I presume, with confidence, that no assertor of that doctrine will admit them; and consequently that nothing is left for them, if they would maintain their character both in point of reason and of sincerity, but to shew that there is some error in my reasoning. To ascertain whether the defect in any of them who fail to do so be the want of understanding, or only the want of sincerity, I have provided a very plain and easy test. I employ the very *same mode of reasoning*, founded on the very *same principles*, to deduce similar inferences with respect to lifeless bodies, such as a billiard-ball or a balance. If

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they do not understand my reasonings, and admit my conclusions, with respect to such bodies, which reasonings and conclusions ordinary men easily understand, and uniformly admit, their defect *may* be only want of understanding; but if they do understand and admit them with respect to bodies, and refuse their assent to them with respect to the actions of men, without shewing some error in the reasoning in the one case which there was not in the other, their defect *must* be want of sincerity.

Proceeding, as I have uniformly done, on this plan, and with all these precautions, I have the satisfaction to think, that it is impossible I should do the smallest *injustice* to any individual, or to any set of men. Nor can any person decently, or without a kind of absurdity, take offence at my conclusions; for they cannot in any degree affect him, unless they be just: and if they be so, those whom they do affect cannot reasonably complain of them. Those who have seriously believed the doctrine of Necessity, if there be any such, cannot

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cannot be displeased at seeing it brought to a fair and decisive test: those who have been only confounded and embarrassed with it, but who never asserted it, and who could neither disprove nor believe it, which I am convinced has been the case with many persons, must be glad to see it brought to such a test: And as for those who have boldly asserted it without believing it, if there be any such, though they may not like to be told, it is very fit they should know, that it is possible, in some cases, to ascertain the most secret thoughts of men, in spite of their own boldest assertions and denials; and consequently that in such cases there are means of detecting pretences, as well as of discovering errors in science.

EDINBURGH, }  
*Jan. 20. 1792.* }

ESSAY.



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ving it, if there be any such, though they  
may not like to be told, it is very fit they  
should know, that it is possible, in some  
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others and do things which they  
in such cases, as in the case of  
injustice, as in the case of



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